BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2003-327-C

IN RE: Continued Availability of Unbundled	)
High Capacity Loops at Certain Locations and	)
Unbundled High Capacity Transport on Certain	)
Routes Pursuant to the Federal Communication	)
Commission's Triennial Review Order	)
____	)

REBUTTAL TESTIMONY OF JAY M. BRADBURY

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, LLC

MARCH 31, 2004

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION TITLE.

A. My name is Jay M. Bradbury. My business address is 1200 Peachtree Street, Suite 8100, Atlanta, Georgia 30309. I am employed by AT&T Corp. ("AT&T") as a District Manager in the Law and Government Affairs Organization.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY.

A. I graduated with a Bachelor of Arts degree from The Citadel in 1966. I have taken additional undergraduate and graduate courses at the University of South Carolina and North Carolina State University in Business and Economics. I earned a Masters Certificate in Project Management from the Stevens Institute of Technology in 2000.

I have been employed in the telecommunications industry for more than thirty-three years with AT&T, including fourteen (14) years with AT&T's then-subsidiary, Southern Bell. I began my AT&T career in 1970 as a Chief Operator with Southern Bell's Operator Services Department in Raleigh, North Carolina. From 1972 through 1987, I held various positions within Southern Bell's (1972 – 1984) and AT&T's (1984 – 1987) Operator Services Departments, where I was responsible for the planning, engineering, implementation and administration of personnel, processes and network equipment used to provide local and toll operator services and directory assistance services in North Carolina, South Carolina, Kentucky, Tennessee and Mississippi. In 1987, I transferred to AT&T's

External Affairs Department in Atlanta, Georgia, where I was responsible for managing AT&T's needs for access network interfaces with South Central Bell, including the resolution of operational performance, financial and policy issues.

From 1989 through November 1992, I was responsible for AT&T's relationships and contract negotiations with independent telephone companies within the South Central Bell States and Florida. From November 1992 through April 1993, I was a Regulatory Affairs Manager in the Law and Government Affairs Division. In that position, I was responsible for the analysis of industry proposals before regulatory bodies in the South Central states to determine their impact on AT&T's ability to meet its customers' needs with services that are competitively priced and profitable. In April 1993, I transferred to the Access Management Organization within AT&T's Network Services Division as a Manager – Access Provisioning and Maintenance, with responsibility for ongoing management of processes and structures in place with Southwestern Bell to assure that its access provisioning and maintenance performance met the needs of AT&T's strategic business units.

In August 1995, as a Manager in the Local Infrastructure and Access Management Organization, I became responsible for negotiating and implementing operational agreements with incumbent local exchange carriers needed to support AT&T's entry into the local telecommunications market. I was transferred to the Law and Government Affairs Organization in June 1998, with the same responsibilities. One of my most important objectives was to ensure that BellSouth provided AT&T with efficient and nondiscriminatory access to

BellSouth's Operations Support Systems (OSS) throughout BellSouth's nine-state region to support AT&T's market entry.

Beginning in 2002 my activities expanded to provide continuing advice to AT&T decision makers concerning industry-wide OSS, network, and operations policy, implementation, and performance impacts to AT&T's business plans.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE REGULATORY COMMISSIONS?

A. Yes, I have testified on behalf of AT&T in numerous state public utility commission proceedings regarding various network and related issues, including arbitrations, performance measures proceedings, Section 271 proceedings, and quality of service proceedings, in all nine states in the BellSouth region. I also have testified on behalf of AT&T in proceedings before the FCC regarding BellSouth's applications to provide in-region interLATA long distance service.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My rebuttal testimony responds to portions of the testimony of BellSouth's witnesses A. Wayne Gray and Shelley W. Padgett.

The testimony of these witnesses contains terminology and concepts regarding the deployment of physical facilities (fiber and copper) and the electronic components associated with them that obfuscate how high capacity loops and dedicated transport are actually provisioned. The witnesses then attempt to leverage the confusion they have created to support a number of false conclusions about actual and potential loop and transport deployment in South Carolina. I will clarify the facts as they relate specifically to AT&T's actual deployment of high capacity loops in South Carolina, and also demonstrate the fact that AT&T is *not* a self-provider of dedicated transport in South Carolina, and the fact that AT&T is *not* a wholesaler of either high capacity loops or dedicated transport in South Carolina. Further, I will discuss how the muddle of terminology and concepts that BellSouth's witness have created does not comport with the Triennial Review Order[1] (TRO), so that any conclusions based upon these defective foundations do not support BellSouth's claims that it should be relieved of its obligations to provide high capacity loops and transport as Unbundled Network Elements (UNE).

Q. CAN YOU PROVIDE A HIGH LEVEL OVERVIEW OF THE FCC'S FINDINGS REGARDING HIGH CAPACITY LOOPS AND DEDICATED TRANSPORT AND THE ASSOCIATED "TESTS" SET OUT IN THE TRO?

A. Yes. However, before I do, I want to note for the Commission that CompSouth Coalition (CompSouth), of which AT&T is a member, has sponsored the testimony of Mr. Gary J. Ball. Mr. Ball's direct and rebuttal testimony contains comprehensive discussion of the FCC's findings and guidance contained in the TRO related to high capacity loops and dedicated transport. AT&T's view of the

[1] Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers (CC Docket No. 01-338); Implementation of the Local Competition Provisions of the Telecommunications Act of 1996 (CC*

TRO is generally consistent with that presented in Mr. Gray's testimony. Therefore, in my testimony I will only provide a summary of the relevant findings and guidance in the TRO.

In the TRO, the FCC determined that incumbent local exchange carriers ("ILECs") must continue to provide CLECs with access to unbundled loops and dedicated transport at the DS1, DS3, and dark fiber capacity levels ("high-capacity loops" and "dedicated transport"). In support of this, the FCC conducted a comprehensive analysis that resulted in the determination that CLECs are impaired without access to high-capacity loops (including DS3 loops at up to two DS3s of capacity per customer location) and dedicated transport (including DS3 transport at up to 12 DS3s of capacity per route) at the national level. In other words, the FCC made a national finding that CLECs are impaired without access to DS1, DS3, and dark fiber high capacity loops (TRO ¶202) and DS1, DS3 and dark fiber dedicated transport (TRO ¶359). As a result, the FCC rules require that competing carriers have access to these types and capacity levels of unbundled high-capacity loops and dedicated transport everywhere unless a state commission finds a lack of impairment as to specific locations and routes.

Recognizing that there may be individual customer locations or transport routes where competitively provisioned high-capacity loops and dedicated transport have been deployed to such an extent that CLECs may not be deemed to be impaired, the FCC developed a procedure known as the trigger analysis ("triggers"). The

---

Docket No. 96-98); Deployment of Wireline Services Offering Advanced Telecommunications Capability (CC Docket No. 98-147), FCC No. 03-36 (rel. Aug. 21, 2003).

two triggers (self-provisioning and wholesale) are intended to give ILECs an opportunity to demonstrate to their respective state commissions that CLECs are not impaired without access to unbundled high-capacity loops or dedicated transport at *specific* customer locations or on *specific* dedicated transport routes for specific capacity levels.

The FCC also provides that ILECs may attempt to demonstrate that no impairment exists for specific loop locations or specific transport routes even though neither the self-provisioning trigger nor the wholesale trigger has been satisfied by showing that there is potential for CLECs to deploy such facilities at specific capacity levels at specific building locations and on specific dedicated transport routes (the "potential deployment" analysis). However, the FCC recognized that there is essentially no likelihood that a CLEC would deploy its own DS1 level facilities, either as loops or transport. Therefore, only DS3 and Dark Fiber facilities are eligible for consideration in connection with ILEC potential deployment claims.

Q. PLEASE DESCRIBE THE LOOP TRIGGERS AND THE KINDS OF FACILITIES THE COMMISSION MUST REVIEW IN APPLYING THEM.

A. The local loop network element is defined as a transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and the loop demarcation point at an end-user customer premises, including inside wire owned by the incumbent LEC. The local loop network element includes all features, functions, and capabilities of such transmission facility. Those features, functions and capabilities include, but are not limited to, dark fiber, attached electronics (except those electronics used for the provisioning of advanced services, such as Digital Subscriber Line Access Multiplexers), and line conditioning. The local loop includes, but is not limited to, DS1, DS3, fiber, and other high-capacity loops.

To be relieved of their obligation to provide local loops as an unbundled network element to a specific customer location, an incumbent LEC must demonstrate, using one of the FCC's specified trigger analyses, that (1) two or more competitive LECs have actually self-provisioned loops to that location at the appropriate capacity level or that (2) two or more competitive LECs are providing wholesale high-capacity loops at the appropriate capacity level at a specific location. In addition, the FCC has held that the wholesale trigger only applies to DS1 and DS3 loops, but not to dark fiber loops. The following table summarizes the Commission's responsibilities under the loop triggers:

LOOP TRIGGER ANALYSIS

The Presence of:	**Trips the Following Loop Triggers and May Establish a Finding of No Impairment @ the Specific Customer Location**		
	DS1	**DS3**	**Dark Fiber**
2 Self Providers @ a specific customer location.		**X**	**X**
2 Wholesale Providers @ a specific customer location.	**X**	**X**	

Q. DO YOU HAVE SIMILAR DEFINITION AND TABLE FOR DEDICATED TRANSPORT?

A Yes. Dedicated interoffice transmission facilities (dedicated transport) are facilities dedicated to a particular customer or carrier that are used to provide dedicated transmission paths between pairs of incumbent LEC central offices or wire centers without the use of any switching. Incumbent LEC transmission facilities include all technically feasible capacity-related services including, but not limited to, DS1, DS3, dark fiber and OCn levels. However, the FCC held that CLECs are not impaired in the absence of access to OCn facilities (provided that dark fiber is available) for dedicated transport, and that CLECs are not impaired without access to DS3 level facilities above a maximum of 12 DS3s of capacity per dedicated transport route.

To be relieved of their obligation to provide DS1, DS3 or dark fiber transport as an unbundled network element on a route between two specified incumbent LEC central offices or wire centers, the incumbent LEC must demonstrate, using the FCC's specified trigger analyses, that (1) three or more competitive LECs have actually self-provisioned dedicated transport at the appropriate capacity levels (less than 12 DS3s) on that route or (2) two or more non-affiliated competitive LECs are providing wholesale dedicated transport services at the appropriate capacity level (less than 12 DS3s) on the specific route. A route is defined as a connection between two wire centers (A and Z) with the connection at both A and Z terminating in a collocation and able to provide transport into or out of each wire center. The following table thus summarizes the Commission's responsibilities under the transport triggers:

TRANSPORT TRIGGER ANALYSIS

The Presence of:	Trips the Following Transport Triggers and May Establish a Finding of No Impairment on the Specific ILEC CO to ILEC CO Route		
	DS1	**DS3**	**Dark Fiber**
3 Self Providers on a specific ILEC CO to ILEC CO route and having collocations in each of the COs.		**X**	**X**
2 Wholesale Providers on a specific ILEC CO to ILEC CO route and having collocations in each of the COs.	**X**	**X**	**X**

Q. THE TRO DISCUSSES "DEDICATED TRANSPORT" AND MAKES AND RELATES DEDICATED TRANSPORT TO "ROUTES" CAN YOU SUMMARIZE THIS RELATIONSHIP?

A. Yes. The TRO discusses Dedicated Transport in ¶¶358-418.

The definition of dedicated transport is discussed and clarified in ¶¶365-369. In ¶369 the FCC concludes its discussion as follows, "Accordingly, we limit the dedicated transport network element to those incumbent LEC *transmission facilities* dedicated to a particular customer or carrier that provide telecommunications *between* switches or wire centers owned by incumbent LECs. We conduct our impairment analysis based on this definition of the transport network element." (Emphasis added, citations deleted.) Dedicated transport is concerned with *transmission facilities*, not switching facilities, *between* switches or wire centers owned by an ILEC. A switch is a facility that by definition is not dedicated to a particular customer or carrier, but rather is available for use in establishing on demand connections between any customer served by the switch and any other customer(s) served by the switch or by another switch(s). I provide additional discussion of the separation of switching for dedicated transport later in my testimony.

The definition of a "route" is discussed and clarified in ¶401.

> "Both triggers we adopt today evaluate transport on a route specific basis. We define a route, for the purposes of these tests, as a *connection* between wire center or switch "A" and wire center or switch "Z." Even if, on the incumbent LEC's network, a transport circuit from "A" to "Z" passes through an intermediate wire center "X," the competitive providers must offer service *connecting* wire centers "A" and "Z," but do not have to mirror the network path if the incumbent LEC through wire center "X." (Emphasis added, citations deleted.)

The diagram provided as Exhibit JMB-R1 depicts both a dedicated transport route that *directly* connects two ILEC wire centers and a route that connects two ILEC wire centers with dedicated transport *indirectly* through an intermediate location. The presence of an intermediate point or points, as shown, along a route between two end-points, so long as the system or fiber strand *remains dedicated* to the exclusive use of one customer or carrier, has no impact on the fact that the route exists. Intermediate points (if there are any) do not have to be the same on the ILEC path and the CLEC path.

The "route" being defined is specifically for the trigger tests associated with *dedicated transport*, an unbundled network element separate from and not inclusive of the switching unbundled network element, and separate from the shared transport element.

Q. IS THE ILEC'S OBLIGATION TO PROVIDE UNBUNDLED DS3 HIGH CAPACITY LOOPS AND DS3 DEDICATED TRANSPORT LIMITED AS A RESULT OF THE TRO?

A. Yes. An ILEC is obligated to provide only 2 DS3 loops to a given customer location for a given CLEC (TRO ¶ 324) and only 12 DS3s of transport on a given route to a given CLEC (TRO ¶ 388). Thus, a carrier having one or more customers at a given location with a combined demand requiring 3 or more DS3s <u>may not obtain more than two DS3s from the ILEC as a UNE,</u> and a carrier that has aggregated demand at a collocation requiring 13 or more DS3s of dedicated transport <u>may not obtain more than 12 DS3s from the ILEC as a UNE</u>.

Q. WHY SHOULD THE COMMISSION BE INTERESTED IN THESE LIMITS?

A. These limits establish where and to what evidence the Commission must look in applying both the trigger tests and potential deployment tests.

Q. PLEASE EXPLAIN.

A. In setting these limits, the FCC has made the determination that CLECs are not impaired in their ability to deploy DS3s for high-capacity loops and dedicated transport at certain quantity levels. Thus the ILEC must demonstrate under the trigger tests that the requisite number of CLECs have deployed DS3s while only providing quantities that are *at or below* the 2 DS3 limit for high-capacity loops and 12 DS3 limit for dedicated transport. Evidence that any number of CLECs have deployed, for example, 4 or more DS3s to a customer location or 13 or more DS3s of dedicated transport between a pair of ILEC central offices does not demonstrate that any other CLEC is not impaired economically if it needs to build, from scratch, 1 or 2 DS3s to serve a customer location or fewer than 12 DS3s of dedicated transport between a pair of ILEC wire centers. (See Exhibit JMB-R2, AT&T's responses to the Florida Public Service Commission Staff's Interrogatories 16 and 17, filed February 25, 2004.)

For example, under the high-capacity loop self-provisioning triggers test, the ILEC must demonstrate that 2 CLECs have actually constructed facilities that serve only 1 or 2 DS3s of demand at a specific customer location in order to obtain relief from providing unbundled high-capacity loop facilities at those capacity levels to any other CLEC. If the ILEC identifies two CLECs that have built high-capacity loop facilities to a customer location each providing 6 DS3s, such information is not pertinent to the self-deployment trigger and the trigger test has not been met. This is because the FCC determined that CLECs are not impaired in constructing facilities at that (6 DS3) capacity level. Contrary to the ILECs' claims, this makes perfect sense. If complete unbundling relief were granted in such circumstances, it would permanently preclude all CLECs whose business plans and marketing efforts are directed to serving smaller enterprise customers whose demand is at the 1 to 2 DS3 level of capacity from utilizing

ILEC unbundled high-capacity loop facilities. Such an outcome is not consistent with the goals of the TRO or the obligations of this Commission to foster the development of competition.[2]

As CompSouth's witness Mr. Gary Ball discusses more comprehensively in his rebuttal testimony, also being filed today, these capacity limits also play a significant role in evaluation of any potential deployment claims made by the ILECs. As discussed by Mr. Ball, in any potential deployment claim at the DS3 capacity level, an ILEC must demonstrate that the competitive providers would earn sufficient revenues relative to their significant fixed and sunk costs of providing two (or fewer) DS3s of traffic for high-capacity loops to a building location or 12 (or fewer) DS3s of traffic for dedicated transport between ILEC wire centers. These are the maximum amount of high-capacity loops and dedicated transport that CLECs may purchase as UNEs under the TRO.

Q. WHAT HAS BELLSOUTH REPORTED ABOUT AT&T?

A. BellSouth has identified AT&T as a self-provider and wholesaler of DS1, DS3 and dark fiber loops to a single location in South Carolina. BellSouth correctly did <u>not</u> identify AT&T as either a self-provider or wholesaler of dedicated transport facilities.

Q. DO YOU AGREE WITH THIS REPORTING?

---

[2] Relief under the wholesale trigger, however, may be available if at least two of the "large" providers at the location meet the requirements for the wholesale triggers, because in such cases the "small" CLEC will have multiple options to the ILEC's special access services.

A. No. AT&T is not a wholesaler of high capacity loops. BellSouth knew this information well in advance of the preparation of its direct testimony and exhibits. The high capacity loop that AT&T has deployed at the identified location is provisioned to carry in excess of the 2 DS3s, the maximum limit for DS3 UNE high-capacity loop availability set by the FCC in the TRO. Moreover, the location BellSouth identifies is not served by a fiber facility and therefore cannot provide any dark fibers to AT&T or any other party. Accordingly, the data and information presented by BellSouth regarding AT&T does not demonstrate that AT&T qualifies as a self-provider "trigger firm" for purposes of the trigger analyses.

Q. DOES AT&T SELF-PROVIDE HIGH CAPACITY LOOPS TO CUSTOMER LOCATIONS TO PROVIDE 1 OR 2 DS3s OF SERVICE, WHICH WOULD MEET THE FCC'S TRIGGER TEST REQUIREMENTS?

A. No. When AT&T is deploying its own loops, it faces not only all of the hurdles that it faces when building interoffice transport, but a number of additional hurdles as well. Because loops generally serve only a single location (and often only one or a few customers at that location), it is even more difficult to accurately identify instances where the potential demand, the costs to build, and the difficulty of construction indicate that AT&T should make the investment in self-provisioning high-capacity loop facilities to a building location.

AT&T has determined that it is - at best - rarely economic to deploy a high capacity loop to a customer location unless there are at least 3 DS3s of traffic and revenue committed from that location[3]. And, in fact, none of the self-provisioned loop facilities that AT&T has built in South Carolina provides less than 3 DS3s of service. As a result, these self-provisioned high-capacity loops do not qualify under the triggers test in the TRO and are not indicative of the ability of any CLEC to self-provide either 1 or 2 DS3s to a customer location under a potential deployment claim by the ILECs.

Q. YOU HAVE STATED THAT BELLSOUTH KNEW THE FACTS CONCERNING AT&T'S WHOLESALING POLICY AND NON-DEPLOYMENT OF DEDICATED TRANSPORT WELL BEFORE THE SUBMISSION OF ITS DIRECT TESTIMONY. PLEASE EXPLAIN.

A. The facts concerning these issues were provided in responses to BellSouth discovery requests, filed in Florida on November 6, 2003 and December 15, 2003, and in responses to the Florida Commission Staff filed on January 6, 2004.

Q. PLEASE EXPLAIN WHY YOU HAVE STATED THAT AT&T IS NOT A WHOLESALER OF EITHER HIGH CAPACITY LOOPS OR DEDICATED TRANSPORT.

A. AT&T has made a business decision *not* to offer dedicated transport facilities to other CLECs connecting to any ILEC wire center in South Carolina. AT&T thus

[3] See Exhibit JMB-R3, AT&T Ex Parte Letter of November 25, 2002, to the FCC.

cannot qualify as a wholesale supplier of dedicated transport even if AT&T had dedicated transport facilities as defined by the TRO, which it does not, as I will explain below.

In fact, as AT&T has explained in its discovery responses provided to BellSouth, AT&T does not self-provide *any* "dedicated transport" facilities in South Carolina as that term is defined in the TRO. The only transport facilities that AT&T has self-provisioned in South Carolina are entrance facilities that connect an ILEC wire center and AT&T's own switch -- which are expressly *excluded* from the revised definition of dedicated transport under the TRO. *TRO* ¶¶ 365-67.

Moreover, AT&T's local fiber networks are not configured to enable it to carry traffic from its collocation facilities in one ILEC wire center to its collocation facilities in another ILEC wire center passed by its fiber ring. The AT&T network, as are most CLEC networks, is more logically thought of as a hub-and-spoke arrangement where traffic flows from the AT&T collocation arrangement to the AT&T local switch. This is a central-point-to-any-point architecture, not an any-point-to-any-point architecture.

The reason for this architecture is simple. There is insufficient demand for AT&T to self-provision DS1 or DS3 dedicated transport between ILEC wire centers. In fact, AT&T buys access from BellSouth to connect many of its off-net collocations to AT&T's fiber network. Given that any wire-center-to-wire-center demand is not likely to exceed 12 DS3s on any one particular route it is, in most instances, more economical to purchase these facilities from the ILEC rather than to self-provision the facilities The fact that wire center to wire center demand is not likely to exceed 12 DS3s of demand and justify self-provisioning of dedicated transport is confirmed by the FCC's national finding that CLECs are impaired for transport below 13 DS3s per CLEC and per route. Rather, AT&T's fiber transport network is configured to flow traffic between an AT&T switch and (1) either an ILEC tandem or end office switch (for example, for purposes of interconnection) or (2) an AT&T collocation arrangement at an ILEC wire center. The latter is commonly known as "backhaul" traffic and is discussed at length in my and other's testimony in the Mass Market Switching Docket No. P-100, Sub 133q (See also Exhibit JMB-R3, AT&T Ex Parte Letter of November 25, 2002, to the FCC.)

The backhauling of traffic to a CLEC switch is the defining characteristic of modern CLEC networks. The FCC has ruled that the facilities used by CLECs for backhaul are not "dedicated transport" for purposes of access to unbundled network elements under § 251(c)(3) of the Telecommunications Act of 1996. *TRO* ¶¶ 365-67.

In terms of the FCC's self-provisioning triggers for dedicated transport, therefore, the AT&T fiber facilities connecting AT&T's collocation arrangements with the AT&T switch that are in place cannot reasonably be construed to begin and terminate at two collocation arrangements at ILEC wire centers. As a result, AT&T's self-provisioned transport fails to meet the requisite definition of a dedicated transport "route", as that term is used in the TRO. In addition, there is no evidence that AT&T meets the requirement of being "operationally ready" or is "immediately able to provision" dedicated transport service between each of the pairs of collocation arrangements claimed by BellSouth.

Any AT&T transport routes in South Carolina would be "entrance facilities" that directly connect an ILEC wire center to the AT&T switch and do not qualify as dedicated transport under the TRO. AT&T has no facilities in South Carolina that directly connect two ILEC wire centers. Thus, AT&T has no dedicated transmission paths between ILEC wire centers; rather, such connections can only be made through its switch, which is *not* dedicated transport.

Thus, AT&T has not self-provisioned any dedicated transport between two ILEC wire centers, which is the only transport defined to be "dedicated transport" in the TRO. Because AT&T does not self-provide any dedicated transport, it does not qualify as a "self-provider" on any transport route in South Carolina, and therefore cannot be considered a wholesaler of dedicated transport on any of the routes listed by BellSouth.

Q. AS SUPPORT FOR HER POSITION THAT AT&T PROVIDES WHOLESALE LOOPS, MS. PADGETT POINTS TO STATEMENTS ON AT&T'S OWN WEBSITE REGARDING "TRANSPORT". IS SHE CORRECT TO RELY ON THESE STATEMENTS TO SUPPORT HER POSITION?

A. No. AT&T does offer some *services* on a wholesale basis to other carriers, including some that involve forms of transport. However, AT&T does *not* offer at wholesale any services that fall under the TRO's definition of dedicated transport.

Carriers that obtain transport services from AT&T desire a particular kind of transport. They want the ability to move traffic between *their switches* to an ILEC wire center, which does not comply with the definition of dedicated transport created in the TRO. In fact, AT&T never has offered transport *between two ILEC wire centers,* which is the only type of transport defined in the TRO as "dedicated transport."

Even a cursory review of the information on AT&T's web site that Ms. Padgett lists in her exhibits SWP-11, SWP-12, and SWP-14 quickly reveals that no services being offered there provide an alternative to the unbundled network transport element of unbundled network loop element.

Q. DO YOU AGREE WITH MS. PADGETT'S CONCLUSION THAT AT&T IS A WHOLESALER OF HIGH-CAPACITY LOOPS?

A. No. There is a simple reason AT&T does not satisfy the wholesale trigger for loops: AT&T offers no high-capacity loops at wholesale. AT&T has made a choice not to engage in the wholesale business of providing high-capacity loops to other carriers.

Again, this information was available to both BellSouth well in advance of their supplemental direct testimony in the form of discovery responses made by AT&T.

Once again Ms. Padgett relies upon information on AT&T's web site. However, as above, even a cursory review of the information on AT&T's web site that Ms. Padgett lists in her exhibits SWP-11, SWP-12, and SWP-14 quickly reveals that no services being offered there provide an alternative to the unbundled network transport element of unbundled network loop element.

Q. ON PAGE 24 OF HER DIRECT TESTIMONY MS. PADGETT REPEATS THE BELLSOUTH CLAIM THAT IT IS "REASONABLE TO INFER THAT A CARRIER HAS A 'ROUTE' BETWEEN ANY PAIR OF INCUMBENT LEC WIRE CENTERS IN THE SAME LATA WHERE IT HAS OPERATIONAL COLLOCATION ARRANGEMENTS." IF A FIBER CABLE RUNS BETWEEN TWO COLLOCATIONS OF THE SAME CLEC, IS IT APPROPRIATE TO CONCLUDE THAT A "ROUTE" HAS BEEN ESTABLISHED AND THAT DEDICATED TRANSPORT IS PROVIDED?

A. No. The mere existence of a fiber cable running past (or even through) two points proves nothing with regard to its use to provide end-to-end direct (non-switched) connectivity between those points. First, the Commission should understand that a fiber cable is not a single continuous transmission path. Rather, a single fiber cable is composed of multiple bundles (sheaths) each of which contains multiple fibers strands. Although a cable route may "run through" both ILEC office A and office B, the two offices may not even be connected to the same fiber, much less to fiber in the same bundle. In fact, most of the fiber sheaths will only pass by the wire center, remaining in the conduit running down the street in front of the building rather than being split off to enter the wire center. In addition, there is no guarantee that all the fibers that are placed from a CLEC's collocation to the main cable are actually spliced to a fiber in the main cable. Once the fiber strands enter the cable vault of the wire center, the incumbent generally provides the connection between the cable vault and the collocation. Frequently, there is a charge applied *per fiber strand* connected. Hence, the CLEC may not opt to connect all strands within a sheath to its collocation. (See Exhibit JMB-R4, AT&T's response to the Florida Public Service Commission Staff's Interrogatory 25, filed February 25, 2004.)

If the two ILEC offices have not been configured to provide termination of the same fiber pairs on the same transmission system, then the CLEC does not (and cannot) have physical connectivity between the two locations unless a grooming and cross-connection function is provided at a third physical location on the same pairs and system.

AT&T typically connects its on-net collocations, that is, collocations to which it has constructed fiber facilities to its network (i.e., an entrance facility), using two-point rings, where one point is the collocation and the second is the AT&T network location (e.g., an AT&T switching center or point of presence). Accordingly, it is not possible to provide "dedicated transport" because, even though more than one collocation is on the came cable route, the collocations are not on the same fibers. AT&T's practice is shown in Exhibit JMB-R5.

AT&T ring construction practices do not provide for multiple incumbent wire centers on the same ring. In the rare instances that multiple incumbent wire centers exist on the same ring, this condition is likely to be the result of (1) acquiring the fiber network of a company that deployed such configurations or (2) sales force error (e.g., sales personnel making commitments based on an erroneous belief that a building was on AT&T's network when it was not). In any event, the presence of multiple incumbent wire centers on the same ring/transmission system is a rare operational exception to AT&T's network engineering practices. From my discussions with other CLECs, I believe this to be true of most CLEC fiber deployments. However, as I will discuss later, even when multiple incumbent wire centers are on the same ring/transmission system one cannot "assume" that a route between them exists.

Q. WHY WOULD A CLEC PUT DIFFERENT COLLOCATIONS ON THE SAME FIBER CABLE BUT NOT THE SAME FIBER?

A. There are a number of practical reasons. First, the ability to place a collocation on a particular fiber presumes operational readiness of all the collocations on the fiber at essentially the same time the fiber strand/system was activated. Said another way, the entire transmission system can only be activated when the last node is ready. Past experience has shown that delay at one or more sites is frequently experienced.

Delays in collocation readiness or construction impediments at only one location may force the carrier to choose between deferring activation for the entire system or implementing a different network design. Such a delay, in turn, may make the difference between whether or not a large retail customer accepts service from the CLEC. Therefore, the more practical approach is to run the fiber cable into a location (or to the access point just outside the wire center), if possible, and then activate each collocation on its own two-point ring using its own fiber pair(s).[4] This has the advantage of divorcing the timing of the cable construction from the timing of collocation activation or augment.

A second major advantage is that extremely precise projections of the demand accessible at the collocation are not required – just a reasonable assurance that a minimum critical mass will be achieved. After that, capacity needed to provide service can be achieved using the existing capacity of the two-point system (i.e., by adding plug-in modules) or by upgrading the system to higher transmission capacities (e.g., from OC48 to OC192). Should such an upgrade be required, it impacts only the customers served out of that particular wire center. In contrast, if multiple wire centers were on the same transmission system (i.e., fiber) all the wire centers on that fiber are potentially affected by a reconfiguration.

Q. ISN'T IT TECHNICALLY FEASIBLE FOR A CLEC TO CREATE A CONNECTION IF THE TWO OFFICES ARE ON THE SAME FIBER CABLE?

[4] The term "fiber pair" is used here as a term of convenience. Typically, a protected transmission system utilizes one pair of fibers to transmit traffic in one direction (e.g., a clockwise direction) with a second pair is assigned to provide transmission in the opposite direction (e.g., the counterclockwise direction). This provides for immediate restoration capability in the event of a fiber cut or transmission equipment failure on the active path. Accordingly four fiber strands terminate on the optical multiplexer but two fiber strands (one in the primary and one in the backup direction) are required for the entire "circumference" of the ring.

A. Yes, but there is a significant distinction between what is technically feasible and what is operationally and economically practical. Even though technology may permit a carrier to create a dedicated transport path between two points, the cost of doing so can be substantial, particularly given that the demand between the two endpoints in the incumbent's network will likely be very small. Accordingly, the FCC's trigger analysis properly requires that a "trigger firm" actually be providing service between the identified offices that form a dedicated transport route. As with all facilities construction, a carrier cannot reasonably be expected to incur the costs of providing connections unless it is a rational approach to the serving arrangement and has the prospect to generate revenues sufficient to cover the costs incurred. And it is highly likely that a CLEC's demand for capacity between two ILEC wire locations on its own ring would be too small to justify such an approach.

Q. ONE OF THE "THEMES" IN THE TESTIMONY OF MR. GRAY AND MS. PADGETT OF BELLSOUTH IS THAT A CARRIER HAVING AN OCN FACILITY IS "OPERATIONALLY READY" TO PROVIDE LOOPS AND/OR TRANSPORT AT THE DS3 AND DS1 LEVELS. IN EFFECT, BELLSOUTH EQUATES OCN FACILITIES AS BEING DS3 AND/OR DS1 FACILITIES. DO YOU AGREE?

A. No. BellSouth's witnesses agree that there is additional, unique equipment that must exist for dedicated DS3s and DS1s to exist on an OCn facility. But they then go on to attempt to trivialize this need. Mr. Gray does this in two ways. On page 4 of his direct testimony he states that such equipment components "are relatively inexpensive, are widely available and can be quickly installed." Second, in his exhibits (AWG-2 and AWG-5), while admitting that there are two ends to each dedicated loop or transport route, he depicts only one end in a manner that over simplifies reality.

While there are a number of vendors that manufacture the required equipment components, they are not free, cannot be procured at the corner electronics store and are not self-installing. Each application to "channelize" an OCn facility to either a DS3 or DS1 level requires design, engineering, procurement, and installation. Where the installation is to occur in an ILEC wire center, it must be performed by installers certified by the ILEC and coordinated with the ILEC under the security requirements that they have imposed on CLECs.

In Exhibit JMB-R6, I have replicated portions of Exhibits AWG-2 and AWG-5 and then combined them in ways that better depict the full requirements for channelization. Without the full complement of specific DS3 and DS1 equipment at both ends of either a loop arrangement or a transport arrangement, the exchange of DS3 and DS1 signals is simply not possible.

In addition, to be operationally ready to provide or offer wholesale DS3 and DS1 services, a CLEC must develop and invest in Operations Support Systems, methods and procedures, and a sales and marketing effort, all of which are conveniently ignored in the BellSouth testimony. CompSouth's witness Gary

Ball provides additional detail on this aspect of operational readiness in his rebuttal testimony that is also being filed today.

Q. ANOTHER THEME IN BELLSOUTH'S TESTIMONY IS THAT THE FACT THAT THERE IS LIT FIBER MEANS THAT THERE IS AVAILABLE DARK FIBER. DO YOU AGREE?

A. No. Mr. Gray makes the statement that "CLECs typically deploy 144 fiber strands or more when extending a cable to large commercial buildings or ILEC wire centers." (Gray, Direct, page 11, lines 21-23) Ms. Padgett states "our billing records indicate that most CLECs that pulled fiber into BellSouth's wire centers requested 2 cables of 12-24 strands each, leaving plenty of spare strands to wholesale." (Padgett, Direct, page 30, lines 20-22). None of these statements actually demonstrates that there is any available dark fiber on any specific route, or to any specific building.

Mr. Gray's and Ms. Padgett's testimony do, however, help to illustrate some of the problem. If a physical fiber ring contains, as Mr. Gray states, 144 strands, and if at every wire center it passes, the CLEC pulls 2 cables of 24 strands each (48 strands) into the building, as Ms. Padgett states, something has to give. In actuality, not all strands pulled into a building (either customer location or wire center) are in fact connected to the ring. The connection between the ring and any building is commonly called a "lateral." While a CLEC may build its lateral with, for example, 24 fibers, only the fibers necessary to deliver service are spliced into the ring. Once a ring fiber has been spliced to a lateral it is either "lit" or "dark," but most commonly "lit." If a ring fiber has not been spliced to a lateral or "lit" directly when it passed through a collocation or a building directly on the ring, it is simply "unavailable", not dark. Un-spliced fibers, left "dead" are <u>not</u> available dark fibers. (See Exhibit JMB-R4, AT&T's response to the Florida Public Service Commission Staff's Interrogatory 25, filed February 25, 2004.)

Q. ON PAGE 25 AND 26 OF HER DIRECT TESTIMONY MS. PADGETT CHALLENGES THE CONCEPT THAT THE TRO REQUIRES THAT A CLEC MUST BE PROVIDING TRANSPORT SERVICE BETWEEN THE TWO ILEC WIRE CENTERS FOR A ROUTE TO BE COUNTED. PLEASE EXPLAIN WHY MS. PADGETT'S INTERPRETATION OF THE TRO IS INCORRECT.

A. It is only logical that the self-provisioning test must include only routes over which the named CLEC is actually providing service to itself. The TRO consists of 485 pages of commentary, including facts, analysis, discussions, findings and guidance to the industry and state regulators, and only 35 pages of rules, in Appendix B. Ms. Padgett's testimony focuses narrowly and exclusively upon the rule, without regard for the content of the text of the order. While I am not an attorney, it is my understanding that rules are to be applied using the associated text from the body of the order for context and guidance. As a layperson, such a process only makes sense – otherwise, why bother publishing the 485 pages.

The body of the order contains multiple references supporting the proposition that the FCC intended that its self-provisioning test must include only routes over which the named CLEC is actually providing transport to itself.

> Dedicated interoffice transmission facilities (transport) are facilities dedicated to a particular customer or competitive carrier that it uses for transmission among incumbent LEC central offices and tandem offices. Competing carriers generally use interoffice transport as a means to aggregate end-user traffic to achieve economies of scale. They do so by using dedicated transport to carry traffic from their end users' loops, often terminating at incumbent LEC central offices, through other central offices to a point of aggregation. (TRO ¶ 361, emphasis added, citations deleted.)

> The first trigger is designed to identify routes along which the ability to self-provision is evident based on the existence of several competitive transport facilities. (TRO ¶ 400, emphasis added.)

> We also expect that the triggers we adopt will produce desirable incentives for competing carriers to build out their transport networks. As a policy matter, we find that unbundling can create a disincentive for competitive LECs to deploy transport. After incurring substantial fixed and sunk costs, a carrier that has deployed transport facilities must continue to compete against carriers able to obtain unbundled transport without incurring any large costs. Moreover, the triggers will benefit competing carriers that invest or have invested in their own transport facilities by attracting additional wholesale customers to mitigate the costs of deployment if their facilities trigger a finding of no impairment that eliminates unbundling. (TRO ¶ 404)

> As noted above, we give substantial weight to actual *commercial* deployment of an element by competing carriers. Therefore, our trigger identifies existing examples of deployment by multiple competitive LECs on a route-specific basis. (TRO ¶ 405, emphasis added, citations deleted.)

> Each counted self-provisioned facility along a route must be operationally ready to provide transport into or out of an incumbent LEC central office. TRO ¶ 406, emphasis added.)

Each of the FCC's concepts, guidance, or anticipated incentives discussed in these paragraphs would be devoid of meaning if, as Ms. Padgett suggests, CLECs do not have to be actually using self-provided transport for the trigger to be met.

Q. WHY WOULD A CLEC NOT BE IN THE BUSINESS OF PROVIDING THE EQUIVALENT OF DEDICATED TRANSPORT ON A RETAIL BASIS?

A. The practical purpose of connecting one ILEC office to another (as opposed to connecting each office to the CLEC's network) is either (1) to provide a dedicated (private line) retail service between two customer premises, one of which is served by a loop from office A and the other served by a loop from office B, or (2) to provide wholesale service to other carriers between those two endpoints. Only the first situation would result in a condition appropriate for consideration in a self-provisioning trigger, and even then only if the total demand were less than 12 DS3s worth of capacity (the maximum capacity that can be obtained as a UNE).

Using such a configuration for retail service strains credibility. A customer that might have substantial demand between two ILEC wire centers would also (most likely) have even more traffic running to locations well beyond those two wire centers. That is, a customer is unlikely to have multi-megabits of transmission between two points in close proximity unless those two points are also connected to many other locations outside the local area. Given that such a hypothetical customer would be a very large enterprise customer, the CLEC would likely also build the loop out to the customer location. Accordingly, the CLEC would not be using or providing "dedicated transport" in that case, because the end-points of the facility are two customer premises, not two incumbent wire centers. (AT&T's

private line product and design specifications require that at least one end of the service be over an AT&T self-provided loop.)

Furthermore, the interconnection of the segments (loop and transport) would not likely occur in the incumbent's offices but would instead be made in a building where the CLEC has unrestricted access, typically one owned (or leased) by the CLEC. Again, such a configuration would not connect two ILEC wire centers and therefore could not even be considered a dedicated transport configuration.

Q. WHY WOULD THE CLEC PROVIDING A PRIVATE LINE SERVICE PREFER TO CONNECT THE SELF-PROVIDED LOOP AND INTER-PREMISES SEGMENT AT A LOCATION OTHER THAN THE TRADITIONAL SERVING WIRE CENTER (OF THE INCUMBENT)?

A. The self-constructed loop facility would generally run back to the CLEC's network node, rather than to ILEC collocation, and then be connected to other fiber as the particular customer design warrants. This affords the CLEC a better ability to control service quality, because its nodes are generally manned round-the-clock, or at least are generally accessible. In addition, fewer potential points of failure (splice points and add/drop multiplexers) are generally involved. Furthermore, CLECs generally employ collocation to obtain interconnection with the incumbent LEC's network and to gain access to UNEs. In this instance, neither is involved. As a result, a CLEC would not ordinarily use costly collocations to create the connection, particularly one that connects facilities that it self-provides entirely from the customer's premises to its network.

Q. ARE THERE OTHER REASONS WHY A CLEC WOULD NOT PROVIDE "DEDICATED TRANSPORT" DESPITE HAVING A CABLE BETWEEN TWO INCUMBENT OFFICES?

A. Yes. Equally important from an operational/network perspective, is the fact that transmission capacity on multi-node fiber ring is "zero sum." This means that if capacity is "drained off" to provide direct termination of traffic between two points on the ring (i.e., to provide dedicated transport between two ILEC offices), it reduces the CLEC's capacity to terminate traffic at other points on the same ring. This occurs because all traffic on a protected ring travels around the entire ring on a transmission system that has fixed capacity.[5]

A simple hypothetical example can help illustrate the constraint. (This example violates AT&T ring design policy.) Page 1 of Exhibit JMB-R7 depicts an OC48 system on a hypothetical CLEC ring that passes through two ILEC central offices and a CLEC node associated with the CLEC's switch. In this example, all traffic from ILEC office A is routed directly to the CLEC's node/switch and all traffic from ILEC office B is also routed directly to the CLEC's node/switch, and there are no connections between ILEC offices A and B. Each collocation uses 24 of the 48 DS3s. The entire capacity of the system is utilized in the above example. I have labeled the DS3s being carried on the ring between the nodes for the "primary" (clockwise transmission). If the "backup" (counter-clockwise

[5] This characterization is a simplification. In actuality, it is more likely that the transmission segment will be active in only one direction. In the event that a transmission failure is detected, the system will automatically activate a transmission path in the opposite direction.

transmission) activated, the numbers of DS3s would remain the same with the A, B and N labels reversing position.

If the CLEC were to reconfigure its ring to establish a transport route for traffic between ILEC offices A and B, the capacity available to permit ingress and egress at the CLEC's network (i.e., A to N and B to N) is reduced. If we assume 6 DS3s are required between A and B, the carrier's revised network configuration is shown on page 2 of Exhibit JMB-R7. Now, only 21 DS3s are available to carry traffic from each of the collocations to the switch.

Thus, the direct routing of traffic between intermediate points on a ring will be the rare exception rather than the rule, because it "steals" capacity from the mainstream purpose of the CLEC's self-provided facilities – to connect retail customers to its network.

Q. COULD THE SUB-OPTIMIZATION YOU DESCRIBED ABOVE BE EFFECTIVELY ADDRESSED BY MAKING A CONNECTION BETWEEN THE TWO INCUMBENT OFFICES AT THE CLEC'S NODE?

A. No, not without the insertion of additional grooming functionality. This grooming capability is provided through a device such as a Digital Cross-connection System (DCS). A DCS is not an inexpensive device and itself consumes floor space and power resources. In fact, in the example discussed above, for the 6 A to B DS3's to become operational there would have to be additional equipment installed at A, B and N. Nevertheless, the Commission must keep in mind that technical feasibility is not sufficient evidence to conclude that there has been actual provisioning of dedicated transport.

Q. ON PAGES 22 TO 24 OF HER DIRECT TESTIMONY MS. PADGETT CLAIMS THAT UNDER THE TRO DEDICATED TRANSPORT INCLUDES SWITCHING. IS THIS CORRECT?

A. No. Nothing in the TRO changes the traditional separation of "dedicated" transport, which has never included switching, from "shared" or "common" transport which does, and in fact, can only be accessed by the use of switching.

The FCC makes it clear that the definition of dedicated transport is concerned with connections between end points without any inter-positioning of switching.

> Accordingly, we *limit* the dedicated transport network element to those incumbent LEC transmission facilities *dedicated* to a particular customer or carrier that provide telecommunications *between* switches or wire centers owned by incumbent LECs.
> (TRO 369, emphasis added.)

The many functions of the switching element are enumerated in the TRO at ¶433, serving as a portion of a transmission path for dedicated transport is not listed. The scope and function of shared transport and the fact that it is inseparable from the switching element is discussed at ¶¶533-534. ¶7, at pages 11 and 12 of the TRO, provides and contrasts definitions of dedicated transport and shared transport including the hardwired linkage between shared transport and switching that does not exist for dedicated transport.

BellSouth's sister ILEC, SBC, has no problem understanding this. In testimony filed before the California Public Utilities Commission on November 20, 2003, Mr. Scott J. Alexander provided the following definition of dedicated transport.

> Dedicated transport facilities connect two points within a communications network, so that information can be transmitted between those two points. "Dedicated" transport means all or part of the facility is dedicated to a particular carrier or use and that <u>there is no switching interposed</u> along the transport route.
> (Emphasis added – testimony in dockets R. 95-04-043 and I. 95-04-044, November 20, 2003) (See Exhibit JMB-R8)

Ms. Padgett's testimony on pages 19 and 20 of her direct also incorrectly asserts that the CLECs have excluded routes between two end points that might happen to pass through other points from our "interpretation" of a route. Ms. Padgett is simply wrong. Dedicated transport does not include switching and the CLEC's testimony does not state that *diverse* routing negates the fact that two end points connected using dedicated transport constitute a route.

Ms. Padgett is confused about the meanings of the terms "direct" and "indirect" and improperly equates "indirect" with "switching". Using her Exhibit SWP-15, Situation A, there are two examples of "direct" routes – Route CO1-CO2, and Route CO1-CO4, and one of an "indirect" – Route CO1-CO3, which passes near or through CO2 without being terminated (or switched) there. There is also a third ILEC direct route – Route CO3-CO4 not being used by any CLECs.

If we assume Route CO1-CO3 is switched at CO2, we can quickly understand why dedicated transport does not use switching as a practical matter. First assume that the route contains a single DS3. When it arrives at CO2 the DS3 must first be "stepped" down to 28 DS1s. Second, the 28 DS1s must be terminated to the switch where they will consume 672 switch ports. Third, 672 full-time, "always on" paths across the switch must be activated in the switch – 672 paths that can never again be used to switch any other customers traffic. Fourth, 672 more switch ports (now a total of 1344) are needed to exit the switch on 28 new DS1s. Fifth, the 28 DS1s must be "stepped up" to the DS3 level to continue on to CO1 or CO3. If instead, the route consisted of an OC48, the number of switch ports required becomes 64,512 and the number of full-time, "always on" paths across the switch becomes 32,256. Dedicated transport does not include switching and never has in my 34 years of telecommunications experience.

Mr. Ball's rebuttal testimony discussing the FCC's use of the term switch in the rule (but not in the text of the order at ¶ 401 when defining a route) is exactly on target. The FCC was envisioning those circumstances in which the term switch is a substitute for the terms, wire center, central office, or switching office.

Q. DOES MS. PADGETT'S EXHIBIT SWP-15 AND HER ASSOCIATED TESTIMONY ON PAGE 22 TO 23 OF HER DIRECT SUPPORT HER CLAIM THAT ENTRANCE FACILITIES SHOULD BE COUNTED AS TRANSPORT ROUTES?

A. No. All Ms. Padgett has done is demonstrate the effect of the FCC definitional change. Clearly, BellSouth does not appear to like the change, but the FCC states specifically that it knew exactly what it was doing and did it for a reason:

> Our determination here effectively eliminates "entrance facilities" as UNEs and, therefore, moots the Commission's *Fourth Further NPRM*

> insofar as it proposes limitations on obtaining entrance facilities as UNEs. *UNE Remand Order*, 15 FCC Rcd at 3914-15, paras. 492-96 (setting forth the *Fourth Further NPRM*). We note that the terms of the *Fourth Further NPRM* were expanded to include unbundled loop/transport combinations in addition to entrance facilities. *See generally Supplemental Order*, 15 FCC Rcd 1760; *Supplemental Clarification Order*, 15 FCC Rcd 9587. We address issues related to unbundled loop/transport combinations *infra* Part VII.A. (TRO footnote 1116)

In her testimony and exhibit Ms. Padgett depicts the self-provisioning of backhaul by a CLEC, yet she attempts to close her misguided argument with a citation from the TRO only applicable to wholesale situations.

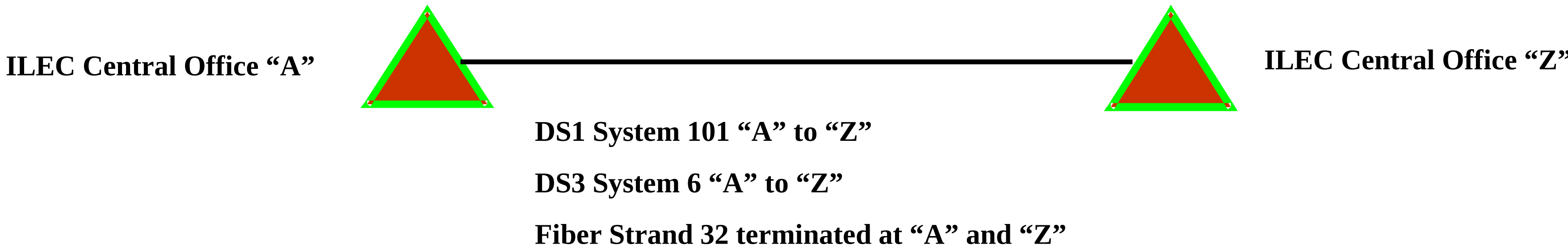
Q. PLEASE SUMMARIZE THE KEY POINTS OF YOUR REBUTTAL TESTIMONY.

A. AT&T is not a wholesale provider of either high capacity loops or dedicated transport. AT&T is not a self-provider of dedicated transport. The high-capacity loops that AT&T self-provides all carry three or more DS3s of demand and therefore are not relevant as self-provisioning triggers under the prescribed actual deployment tests and provide no probative data for use in the prescribed potential deployment analysis. BellSouth was aware of, but chose to ignore, the facts about AT&T's operations in South Carolina. BellSouth's conclusions that OCn facilities are the equivalent of DS3 and DS1 facilities, that dark fiber must exist because there is lit fiber, and that dedicated transport routes can include switching are incorrect. BellSouth has failed to provide the evidentiary demonstration required by the FCC in the TRO for relief of its obligations to provide high-capacity loops and dedicated transport as UNEs.

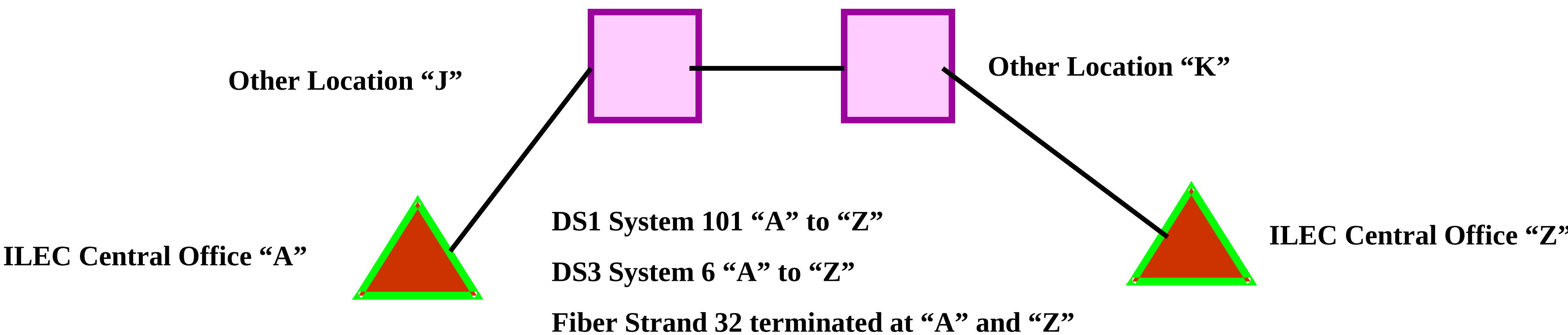
Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Direct dedicated transport route between ILEC wire center “A” and “Z”



Indirect dedicated transport route between ILEC wire center “A” and “Z”



Docket 2003-327-C
Rebuttal Testimony of Jay M. Bradbury
March 31, 2004
Exhibit: JMB-R1

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Implementation of requirements arising	)	
from Federal Communications Commission	)	Docket No. 030852-TP
triennial UNE review: Local Circuit Switching	)	
for Mass Market Customers.	)	Filed: February 25, 2004
	)	

AT&T'S RESPONSES TO STAFF'S
SECOND SET OF INTERROGATORIES (15-44)

AT&T Communications of the Southern States, LLC ("AT&T") pursuant to Rule 28.106-206, Florida Administrative Code, Rule 1.340, Florida Rules of Civil Procedure and Order No. PSC-03-1055-PCO-TP, issued in this docket on September 22, 2003, hereby files its Responses to Florida Public Service Commission Staff's Second Interrogatories (15-44).

REQUEST: Staff's Second Set of Interrogatories

DATED: February 6, 2004

Interrogatory 16: For purposes of the following request, please refer to the rebuttal testimony of AT&T witness Bradbury, page 14, lines 5-8. Please discuss and justify, using specific cites from the TRO, your position that if a competitive providers loop(s) at a particular location were provisioned to carry in excess of 2 DS3s, then the providers loop(s) at that location could not count toward the self-provisioning trigger.

Response: There are two bases for this position. First, the TRO is explicit that the self-provisioning trigger must be analyzed at the relevant capacity level. Thus, for self-provisioning to be relevant, it must be of "the specific type of high capacity loop" in question. ¶ 328 The self provisioning trigger is satisfied only by "facilities at the relevant loop capacity level." ¶ 329. The self provisioning trigger requires evidence of "facilities in place serving customers at that location over the relevant loop capacity level." ¶ 332. Facilities which provide loop service at 6 DS3s, which is equivalent to OC3, are at a different capacity level than that in question under the DS3 loop self-provisioning trigger. The deployment of OCn loops, as to which the FCC found there was no impairment, ¶ 315, is not relevant to the self-provisioning trigger for DS3 loops, as to which the FCC found there is impairment, ¶ 320, because the two are at different capacity levels. If OC6 deployment were relevant to the DS3 self-provisioned loops trigger, the FCC would have said so, and would not have repeatedly and explicitly emphasized that the analysis must be conducted at the relevant capacity level. Indeed, as the FCC explained in footnote 957, where DS-1 loop self-deployment is only feasible because of prior OCn or 3 DS3 self-deployment at a customer location, the DS-1 deployment is not relevant and does not impact the FCC's DS1 impairment finding. (There is no DS1 self-provisioning trigger test.)

> It is important to note, however, that this evidence of self-provisioning has been possible where that same carrier is already self-provisioning OCn or a 3 DS# level of loop capacity to that same customer location. *Thus, this evidence does not support the ability to self-deploy stand-alone DS1 capacity loops nor does it impact our DS1 impairment finding*. (Emphasis added).

A second basis of this position is that if complete unbundling relief is granted upon a finding that the self-provisioning triggers are met for loops at a particular location, then other CLECs would loose the right to obtain UNE loops at the 1-2 DS3 capacity level at that location. Such a result would not be consistent with the rationale of the TRO, which is to unbundle network elements in those contexts where CLECs are impaired at the relevant capacity level. See, e.g., TRO para. 7. ("A requesting carrier is impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic.") That CLECs A and B may have self-provisioned OC3 capacity loops channelized to 3 DS3s of loop capacity at a particular location does not make it economically or operationally feasible for CLEC C to self-deploy 1 or 2 DS3s of loop capacity at the same location. (See TRO para. 320 for discussion of of self-deployment at the 1-2 DS3 level). Therefore, to avoid depriving an impaired CLEC C of access to unbundled loops, the self-provisioning of CLECs A and B with OCn deployment should not operate to satisfy the trigger as to CLEC C. The rationale of this approach is consistent with and is illustrated by the TRO's approach to the scope of unbundling relief where the wholesale triggers are satisfied. As explained at TRO paragraphs 391-393 pertaining to the wholesale trigger for DS1 transport:

> DS1 transport is used by competing carriers to expand into new service areas and may be used as a transition mechanism for carriers just entering an area, or for carriers serving a customer in an area only as a supplement to its primary operations in another area. In these situations, carriers are able to enter new markets to begin accumulating traffic, but do not have sufficient traffic to self-deploy. Under our analysis, new market entrants will have the ability to access unbundled DS1 transport, or access DS1 transport from multiple competing carriers.

Thus, where the wholesale trigger is satisfied, the new market entrant can obtain transport from multiple competing carriers, and can enter the market even though it is not economically feasible to self-deploy. In this context, the UNE transport is no longer necessary as CLECs with smaller demand can obtain the same thing - economical transport - at competitive market prices. This facilitates and promotes the overriding policy of market opening and competition. The same economic rationale applies with equal force to new market entrants or smaller CLECs in the context of loops. Thus, even if two CLECs are each providing OC3 capacity loops channelized to DS3s of loop capacity at a particular location, smaller, new market entrants should retain the right to UNE loops because such self-provisioning, in contrast to the competitive wholesale facilities, does not show that new entrants can obtain economical loops from multiple competing carriers. In order to facilitate market entry by CLECs who lack sufficient demand to economically self-deploy, UNE loops should remain available to CLEC C even though CLECs A and B have each self-deployed, for example, 3 DS3s of loop capacity via OCn facilities. This is necessary to carry out the overriding rationale of the impairment analysis. As the FCC stated in para. 197 of the TRO, the purpose of the capacity level analysis is to enable the FCC to "more precisely calibrate our rules to ensure that competitive LECs only gain access to unbundled loops where they are impaired under the standard we adopt above, i.e., where they cannot economically self-provision loops and competitive alternatives do not exist."

REQUEST: Staff's Second Set of Interrogatories

DATED: February 6, 2004

Interrogatory 17: For purposes of the following request, please refer to Bradbury rebuttal, page 16, lines 4- 10. Please discuss and justify, using specific cites from the TRO, your position that the FCC made a "national finding that CLECs are impaired for transport below 13 DS3s per CLEC and per route." Where in the TRO did the FCC state specifically that it made a national finding of no impairment for transport below 13 DS3s per CLEC and per route?

Response: In paragraph 359 of the TRO, the FCC found that CLECs are not impaired without access to unbundled OCn dedicated transport services, but are impaired for standalone DS3 level dedicated transport services. In paragraph 388, the FCC determined that CLECs with a demand of more than 12 DS3s on a given route could overcome the national finding of impairment for DS3s based upon the sufficient revenue available from that quantity, essentially treating that route as if it were an OCn level route. The FCC reaffirmed its finding in paragraph 389. For routes in which a CLEC is providing less than 13 DS3s, the national finding of impairment applies.

Joan Marsh
Director
Federal Government Affairs

Suite 1000
1120 20th Street NW
Washington DC 20036
202 457 3120
FAX 202 457 3110

November 25, 2002

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW, Room TWB-204
Washington, DC 20554

Re: Notice of Oral Ex Parte Communication, In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket Nos. 01-338, 96-98 and 98-147

Dear Ms. Dortch:

In recent *ex partes*, AT&T has stated that the absolute minimum "crossover" point at which it becomes economically rational for a requesting competitive carrier to consider constructing its own interoffice transport facilities is reached when the carrier can aggregate approximately 18 DS3s of *total* traffic in a Local Serving Office (LSO), including all local, data, exchange access and interexchange traffic routed through the office. At Staff's request, AT&T has developed a detailed explanation of the methodology used to develop that estimate which can be found in Attachment A to this letter.

One of the critical points to note is that in developing the "crossover" point, AT&T did *not* attempt to assess the ILECs' TELRIC costs of providing transport to themselves and their affiliates (and thus the actual cost disadvantage that requesting carriers face in using such facilities to offer services that compete with the ILECs' services). Rather, AT&T compared the costs of provisioning its own transport to its average costs for purchasing ILEC *special access services*, which are admittedly *not* offered at cost-based rates. Indeed, they are priced at exorbitant levels. Thus, this analysis is highly favorable to the ILECs. Given that TELRIC costs are actually between half and two-thirds of the prevailing special access rates, the crossover point for facilities construction necessary for a competitive carrier not paying special access rates to achieve cost parity with the ILECs is between 28 and 36 DS3s of total traffic. *See* Attachment A.

As is also obvious from Attachment A, transport construction represents a high fixed cost. Moreover, nearly two-thirds of interoffice transport costs are fixed.[1] Thus, a carrier cannot be expected to begin construction of its own transport facilities until it is reasonably certain that it will have the necessary scale to recover its construction costs.[2] Otherwise, such construction would simply be wasteful.

In this regard, it is essential that CLECs be able to achieve a cost structure comparable to the ILEC's even where the incumbent's existing prices are well above costs. Where a CLEC has significantly higher costs than the ILEC, the CLEC knows that the ILEC could simply drop its prices below the CLEC's costs, but still above the ILEC's costs, and remain profitable. But by setting prices below the CLEC's costs, the ILEC would make it impossible for the entrant to remain economically viable. The prospect of such a pricing strategy is particularly high where, as is the case for services provided to businesses, the ILEC can price discriminate. This allows the ILEC to lower prices selectively, *i.e.*, only to those customers that could potentially be served by the CLEC, and thus to keep prices high for all other customers. Thus, because transport constitutes a sizeable percentage of the overall cost of telecommunications services, facilities-based entry is generally viable only where a CLEC can self-deploy transport at a cost that is not well in excess of the ILEC's costs.[3]

Finally, a carrier's analysis of whether to construct a fiber backbone ring (and thus provide its own transport) is very different from its analysis as to whether to build a Building Ring or a Customer Lateral off an existing Building Ring to provide the equivalent of a loop for large customer buildings. Accordingly, the amount of committed traffic necessary to support the construction of loops for large business customers – which AT&T has indicated is about 3 DS3s of traffic – is substantially less than the amount needed to support the construction of a backbone ring. The assumption here is that the existing transport ring is justified for other purposes and that the loop is addressed by incrementally attaching a small ring to serve a specific building and, where necessary, a short lateral extension. In support of AT&T's claim that 3 DS3s of traffic is required to support an economically rational lateral fiber build-out, and to ensure that the record is complete, AT&T is also submitting with this *ex parte* a detailed discussion regarding AT&T's estimation of loop construction costs, which is appended as Attachment B.

---

[1] *See ex parte* letter from C. Frederick Beckner to Marlene Dortch dated November 14, 2002, attaching white paper prepared by Professor Robert D. Willig entitled "Determining 'Impairment' Using the *Horizontal Merger Guidelines* Entry Analysis," p. 13.

[2] *Id.* at 5.

[3] *Id.* at 7-8.

Consistent with Commission rules, I am filing one electronic copy of this notice and request that you place it in the record of the above-referenced proceedings.

Sincerely,

Joan Marsh

cc: Michelle Carey
Thomas Navin
Robert Tanner
Jeremy Miller
Dan Shiman
Julie Veach
Don Stockdale

Attachment A

DETAILED DESCRIPTION OF CLECS' COLLOCATION AND BACKHAUL INFRASTRUCTURE COSTS

Introduction:

A CLEC seeking to enter the market using its own facilities must incur collocation and transport costs to "backhaul" traffic from an ILEC serving office where its customers' loops terminate to its own switch. In a recent filing, AT&T explained that the costs associated with collocation and backhaul average about $33,000 per month and that at least 18 DS3s in traffic volume is required to make such investment prudent. This document provides detailed information on how these figures were developed.

In simple terms, collocation costs arise from three key sources: (1) the backhaul facility, (2) the collocation space itself, and (3) the equipment placed within the collocation. The derivation of costs for each component is described below.

Backhaul Facilities:

Backhaul facilities comprise the largest component of a CLEC's infrastructure costs. These include the costs of deploying an interoffice fiber facility in a ring architecture. The absolute cost of such a ring is predominantly a function of the length of the fiber cable, the nature of the structure employed to support the cable (aerial/buried/underground) and the density zone where the fiber facility is deployed. The number of strands deployed impacts the carrier's costs to only a minor degree.[1]

The following table lists the key assumptions underlying AT&T's calculation of structure costs and identifies the HAI material discussing the derivation of the input cost:

Item	Aerial	Buried	U/G	ref (HAI 5.2)
Placement/ft		$ 1.77	$ 16.40	p.102
Added Sheathing/ft		$ 0.20		p.102
Conduit			$ 0.60	p.102
Pull Box (per ft, 1 per 2000 ft)			$ 0.25	p.104
Poles (per ft, 1 per 150ft)	$ 2.78			pp.104-105
U/G excavation/restoration			$ 23.74	p.140
Buried excavation/restoration		$ 6.71		p.143
Total construction	$ 2.78	$ 8.68	$ 40.99	

[1] In fact, the variable cost per fiber strand is $0.032/foot (See HAI 5.2 inputs, page 100) and the average cost of the cable (installation and engineering) is about $1.00 per foot. In sharp contrast, the cost of supporting structures for a cable can be as high as $45/foot (for buried cable) or $75/foot (for underground cable). For the purposes of analysis, although large quantities of dark strands would be deployed with the initial build, no cost of this dark capacity is attributed to the interoffice transport

The buried and underground (U/G) placement costs in the above table are derived from the HAI model input data. They represent a weighted average of the four highest density zones in the model. These zones were selected because they are the zones covering more metropolitan areas, where CLEC facility construction is most likely to occur first. This is also consistent with the RBOCs' data on existing placements of fiber-based collocations.[2] The following weightings were applied by density zone:

Weighting Factor	
Density Zone	Weighting
0-5	0.00%
5-100	0.00%
100-200	0.00%
200-650	0.00%
650-850	0.00%
850-2250	65.00%
2250-5000	20.00%
5000-1000	10.00%
>10000	5.00%

The weighted unit costs were developed by multiplying the density zone weighting and the appropriate structure placement unit cost (note that the aerial placement was not a function of density zone). The placement unit costs employed and the resulting weighted averages are shown below:

Buried Excavation, Installation, and Restoration (p.143)	
Density Zone	Cost/ft
0-5	$ 1.77
5-100	$ 1.77
100-200	$ 1.77
200-650	$ 1.93
650-850	$ 2.17
850-2250	$ 3.54
2250-5000	$ 4.27
5000-1000	$ 13.00
>10000	$ 45.00
Minimum	$ 1.77
Maximum	$ 45.00
Employed	$ 6.71

U/G Excavation, Installation, and Restoration (p.140)	
Density Zone	Cost/ft
0-5	$ 10.29
5-100	$ 10.29
100-200	$ 10.29
200-650	$ 11.35
650-850	$ 11.88
850-2250	$ 16.40
2250-5000	$ 21.60
5000-1000	$ 50.10
>10000	$ 75.00
Minimum	$ 10.29
Maximum	$ 75.00
Employed	$ 48.90

[2] The RBOC UNE Fact Report (page III-2, Table I) shows that 13% of the RBOCs' wire centers have fiber collocators present. The cut off for the top 13% of RBOC offices is in the range of 36,000 lines. Given that loops are generally less than 3 miles in length, a central office service area will be about 27 square miles (or less in metropolitan areas). Thus the RBOCs' own data show that CLEC facility builds are occurring in areas where line density is no lower than 36,000/27, or no less than about 1,400 lines per square mile. Thus, using the entire 850-2250 line density zone is conservative.

Because structure proportions vary by density zone, it was necessary to establish the weighted average structure presence in order to develop a single weighted average unit cost. The structure proportion by density zone was obtained from HAI 5.2 inputs and are shown below:

Fiber Feeder Structure Proportions (HAI 5.2 p/59)			
density zone	aerial	Buried	U/G
0-5	35%	60%	5%
5-100	35%	60%	5%
100-200	35%	60%	5%
200-650	30%	60%	10%
650-850	30%	30%	40%
850-2250	20%	20%	60%
2250-5000	15%	10%	75%
5000-1000	10%	5%	85%
>10000	5%	5%	90%

These proportions were then multiplied by the above density zone weighting and yielded the following weighted presence of structures for the purposes of the study:

Weighted Structure Distribution			
Density Zone	Aerial	Buried	U/G
0-5	0.0%	0.0%	0.0%
5-100	0.0%	0.0%	0.0%
100-200	0.0%	0.0%	0.0%
200-650	0.0%	0.0%	0.0%
650-850	0.0%	0.0%	0.0%
850-2250	13.0%	13.0%	39.0%
2250-5000	3.0%	2.0%	15.0%
5000-1000	1.0%	0.5%	8.5%
>10000	0.3%	0.3%	4.5%
Weighted	17.3%	15.8%	67.0%

The cost of the fiber cable placed within the structure was also derived from HAI inputs. Fiber feeder cost were used as a proxy (see HAI 5.2 inputs, page 100):

	Fixed (per cable)/foot		Variable
	Installation	Engineering	per strand
Buried	$ 0.970	$ 0.040	$ 0.030
Aerial	$ 0.880	$ 0.040	$ 0.037
Underground	$ 1.020	$ 0.040	$ 0.032

Finally, it was necessary to establish the lives for the various types of facility placement, the salvage and the annual maintenance cost in order to quantify the full cost of the conductor. These inputs are listed below, together with the source:

Item	Aerial	Buried	U/G	ref (HAI 5.2)
Life	26.14	26.45	25.91	p.129
Salvage	-17.5%	-8.6%	-14.6%	p.129
Maintenance	0.7%	0.8%	0.6%	FCC Synthesis Model Input

In order to generate a single set of factors covering the three alternative structures, the individual results were combined as a weighted average. This was accomplished by weighting each unit cost and the salvage, life and maintenance factor by the proportion of structures in the density zones under consideration. This was done by using the weighted average structure distribution developed above.

The following elements were the resulting weighted element inputs:

Weighted Life		26.03	
Weighted Salvage		-14.1%	
Weighted Maintenance		0.67%	
Total Installed Cost	$	30.34	per foot
	$	0.033	per strand per foot

In order to quantify the investment, the total length of cable and the total number of strands needed to be specified. For the analysis, an average span cost assignment equivalent to 8.94 miles was employed, based upon AT&T's experience.[3] Thus, the total assigned investment is $1.435 million per span.[4] The associated monthly maintenance expense is 0.67% of the investment amount assigned to the node divided by 12, or $798 per month per node.[5]

The monthly capital recovery was amortized over the life of the investment after the investment was grossed-up for the net salvage. A 14.24% cost of money was employed, which is very conservative, as it does not reflect the higher risk associated with the CLEC

[3] By the end of 2001 AT&T had deployed 17,026 route miles of local fiber in which 1,905 spans were active (unique point pairs) Accordingly, the average route miles per active span in AT&T's network is 8.94 miles. While this does not mean that each physical segment is that length, it provides a reasonable means to allocate, among active uses, the cost of a shared facility.

[4] The calculation is (8.94*($30.34 + 2*.033)*5280) for a total of $1.435M.

[5] The calculation is ($1.435M*0.67%)/12.

operations (compared to the 10% cost of money assumed for the incumbents).[6] These factors yielded a monthly investment recovery cost of $19,937 for the facility.[7] The total monthly costs for the facility, including maintenance, is $20,806 per month. Another 5% was added to account for non-income tax coverage requirements for a total of $21,771 per month.

<u>Collocation Space:</u>

Collocation costs are simply the costs associated with renting and securing conditioned Central Office space within an ILEC office. The collocation space is the area where the CLEC places its transmission equipment and terminates its interoffice facility for cross-connection to other interoffice or loop facilities. The collocation costs are comprised of two main components: (1) the cost of initially preparing and securing the space, and (2) the on-going cost of renting the space (which not only includes the physical space but also heating, ventilation, air conditioning and power).

The space preparation cost is treated as an investment and recovered over the life of the equipment placed within the collocation. For the purposes of this analysis, 10.24 years was employed, which is the average useful life of digital circuit equipment (see HAI 5.2 inputs, page 129). The same cost of money and treatment of taxes employed for the facility analysis above was utilized here as well. Neither gross salvage nor cost of removal were assumed.

Because HAI inputs are oriented to ILEC operations, no collocation costs are reflected as cost inputs. Accordingly, internal estimates of collocation preparation costs were employed. Internal estimates indicated that the preparation costs are in the range of $200,000 to $250,000. This, in turn, yields a $3,488 monthly cost for the preparation alone.

The monthly physical collocation rental costs were developed from ILEC billing to AT&T. When analyzed on the LEC-LATA level, the average monthly expense was $4,083 although the true mean could be expected to lie anywhere in the range of $3,579 to $4,586 (at a 95% level of confidence). The average figure was employed for the analysis.[8] Accordingly, the monthly costs attributable to collocation in total were $7,950 per month after taking into account taxes other than income taxes.

---

[6] For simplicity in the study, a pre-tax cost-of-money was employed. The figure is entirely consistent with the ILEC cost of money of 10.01% employed in the HAI model The 14.24% cost of money is derived by the following equation: %debt*cost of debt+%equity*cost of equity/(1-effective income tax rate). In this instance the % debt was 45%, the cost of debt was 7.7%, the cost of equity was 11.9% and the effective income tax rate was 39.25%.

[7] The calculation was the EXCEL PMT function: @PMT((14.24%/12),(26.03*12),(($1 435M)*(1-(-14.1%)) . The multiplication by 1.1418 grosses the initial investment up for gross salvage less cost of removal which, in this case, is negative.

[8] As with other expense, this figure was increased by 5% to account for taxes other than income taxes

Transmission Equipment:

When operating at the interoffice transport level, there is relatively little equipment placed within the collocation. The necessary equipment includes: optical path panels (to terminate and cross-connect the fiber facility), optical multiplexers, and power distribution (e.g., power filtering and fuses) equipment.

The optical path panel costs are described in HAI 5.2 inputs (p.97). The panels cost $1,000 each, and the cost of cross–connecting to the equipment is $60/strand. In this instance, 2 cross-connections are required per panel (one in and one out) and 2 panels are employed (one for each strand to assure no single point of failure). Accordingly, the capital investment for the panels is $2,240.

The HAI input lists the investment associated with an optical multiplexer (see page 96). The base unit cost is $40,000 (12 DS3 capacity) and the fully equipped unit cost is $50,000 (48 DS3s). Thus, the investment is $40,000, $43,333.33, $46,666.67 or $50,000 depending upon whether 12, 24, 36, or 48 DS3s are in service. This is the only aspect of the investment that is demand sensitive (i.e., if fewer than 48 DS3s are assumed) but this amounts to little more than $3 per DS3. Two multiplexers are assumed to provide redundancy and, as set forth in HAI 5.2 inputs, it is assumed that there is $1,760 invested to engineer, furnish and install each multiplexer and associated optical panel (see page 97). The total investment in the optical multiplexers (24 DS3s assumed) is $90,187.[9]

The installed cost of the last remaining equipment item – the battery distribution fuse bay (BFDB) – is estimated at $62,500.[10]

The total installed equipment cost is therefore $2,240 for the distribution panels, $90,187 for the multiplexers and $62,500 for the BFDB, yielding a total of $154,927. Amortizing this amount over the average useful life of circuit equipment, applying a 1.69% net salvage (HAI 5.2 p 130) and the same cost of money as above, yields an investment recovery cost of $2,443 per month. Maintenance costs are derived by applying a 2% annual maintenance factor (see FCC Synthesis Model for circuit equipment) to the $154,927 gross investment (with the result divided by 12), for a maintenance cost of $258 per month. Combining these two figures and providing for 5% non-income tax related costs yields a total cost of $2,836 per month.

Rationale for the 18 DS3 Minimum:

Adding all of the above figures yields a monthly average cost of $32,557. Given that the monthly costs of facility-based collocation are effectively insensitive to volume, the average unit cost is simply the $32,557 monthly figure divided by the number of DS3s in service.

---

[9] 2*(43,333.33+1760)

[10] This is an internal estimate, because there is no equivalent identified in the HAI inputs.

Assuming that unbundled transport is not available as an unbundled network element, and in the absence of market-based competition for connectivity between the necessary points, a CLEC's only practical alternative to building its own facilities is to use ILEC special access service. In today's market, given the continuing imposition of use and commingling restrictions, this special access would be likely be bought under a term plan of either three or five years. Assuming that the special access interoffice mileage would be equivalent to the average span, then a comparison of alternatives is possible. Note, however, that this is *not* a comparison between actual ILEC costs for existing transport facilities and anticipated CLEC costs for new construction. Rather, it is a comparison between anticipated CLEC construction costs and ILEC special access rates, which are admittedly well above the ILEC's costs.

AT&T's experience is that a DS3 interoffice facility plus one channel termination[11] will cost approximately $2,363 per month under a 36-month term agreement and $1,780 per month under a 60-month term agreement. Thus, at least 14 DS3 would be required to break-even compared to a 36-month term special access rate and at least 18 DS3s would be required compared to a 60-month term special access rate. Given that the collocation was assumed to have a 10-year useful life, comparison to the 60-month term agreement was judged most relevant, making the 18 DS3 figure the appropriate comparison.

In fact, AT&T has demonstrated that special access is priced (exorbitantly) well above economic cost. Further, AT&T has demonstrated that a carrier cannot viably enter a local market on a facilities-basis if it incurs costs for a key input that are well above the cost that the ILEC itself incurs for that input. Given that the ILEC's economic costs of transport are in the range of half to two-thirds of prevailing special access rates, then 28 to 36 DS3s would be required to "prove-in" a transport facilities build if the competitive carrier were to achieve cost parity with the ILEC.[12]

---

[11] If a facility is not build, not only is the interoffice transport required but a connection from the final LSO to the switch location (i.e., a high capacity channel term or entrance facility) is also required.

[12] If the unit cost alternative were 50% to 67% lower, then the revised break-even point is simply the originally calculated break-even point divided by the preceding price ratio.

Attachment B

ESTIMATING THE COST OF LOOP CONSTRUCTION

Introduction:

Loop facilities are one of the most basic components of a telecommunications network and are used in the provision of all services, whether switched or dedicated. These facilities provide the physical connection between the customer location and the network of the serving carrier. Because much of the investment is dedicated to one or a very small number of customers, and because the facilities have very high initial costs to deploy, only the very largest customer locations (in terms of service demand) can be economically reached through an over-build. The focus of this paper is upon such "large" customer locations. As shown below, a CLEC must have the potential to serve a large number of buildings (about 20) within a consolidated geographic area, with each building generating at least 3 DS3s of demand before a build is economic. Even then, serving the location will involve significant investment – approximately $6.7M for the building ring, plus approximately $3M for the premises and node equipment. And all of this analysis assumes that the CLEC considering the build can reach the buildings in the area with rights of way and building access comparable to the ILEC.

Before discussing the costs of building it is first important to share a common understanding of the general architecture of the outside plant employed by a CLEC. Figure 1 below provides a general representation of this plant:

Typical Configuration of "Local" Fiber Rings

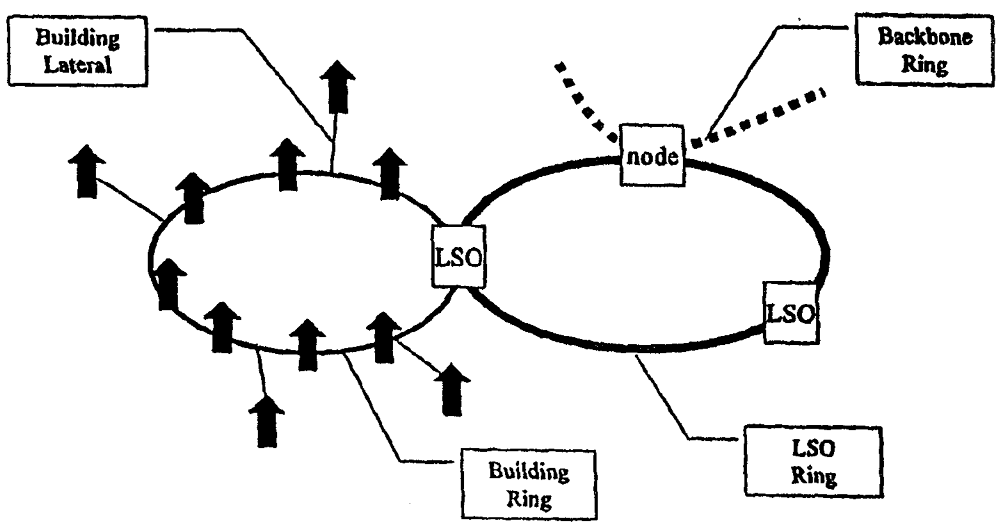


Figure 1.

A self-provided CLEC "loop" is actually composed of two to three interconnected facilities. The first is the LSO Ring. This ring connects the network locations (*e.g.*, facility/switch nodes and collocations) within a metropolitan area. The cost of connecting these locations is discussed in a related paper quantifying the costs of transport and will not be repeated here.[1] The LSO Ring interfaces with two other ring types: backbone rings and building rings. Because the loop is constructed to reach the service provider's network, which effectively starts and ends at the backbone ring (for dedicated services) or the switch connecting to the backbone ring (for switched services), the costs of the backbone ring are not relevant to the discussion of loop costs. On the other hand, the building rings are a significant consideration in quantifying loop costs. A Building Ring extends the CLEC network from a very aggregated demand point (*i.e.*, the facility-based collocation in an LSO) to (or near) customers' premises.

The final component of the loop infrastructure is the Customer Lateral. When a Building Ring is constructed, every effort is made to run the ring facility directly though critical buildings. In fact, Building Rings tend to be about 30 route miles long and tend to have 10 to 15 buildings on each.[2] Whether or not a building is placed on a ring is highly dependent upon factors such as the following: (1) whether the location was identified as a "high volume" location early enough in the planning to permit its inclusion, (2) whether access to the building could be secured from the landlord in a timeframe consistent with the overall project time line, and (3) whether building access costs were not judged prohibitive. If a building is not placed directly on the building ring as part of the initial build, it may still be possible to add a building at a later point. Such buildings are added by extending a short segment of fiber that is spliced to the ring and extends to the building. Because these segments are not shared with any other users other than the single building connected, and because the segment generally is not protected via diverse routing of redundant facilities, laterals tend to be very short.[3]

To recap: an LSO Ring is a highly aggregated facility that is shared among a wide variety of customer locations and services; a Building Ring is a facility whose use is shared among 10 to 15 buildings; a Customer Lateral is a facility useful only for the particular building connected.

In order to quantify the cost of these loops, a general understanding of the essential equipment components is important. The key components are shown in Figure 2:

---

[1] See Attachment A to this Submission, referred to herein as the Transport *ex parte*.

[2] These characteristics tend to vary by specific metropolitan area. However, the AT&T Outside Plant Engineering organization believes these parameters reasonably reflect the conditions across its local markets. Other carriers may have different experiences due to different market strategies and less robust local fiber facility deployment.

[3] AT&T seeks to limit laterals to less than 500 feet in order to contain customer-dedicated investment and to reduce the risk of facility damage (*i.e.*, the longer the facility the greater the probability that some form of mechanical harm may be experienced).

Typical Configuration of An On-Net Building "Loop"

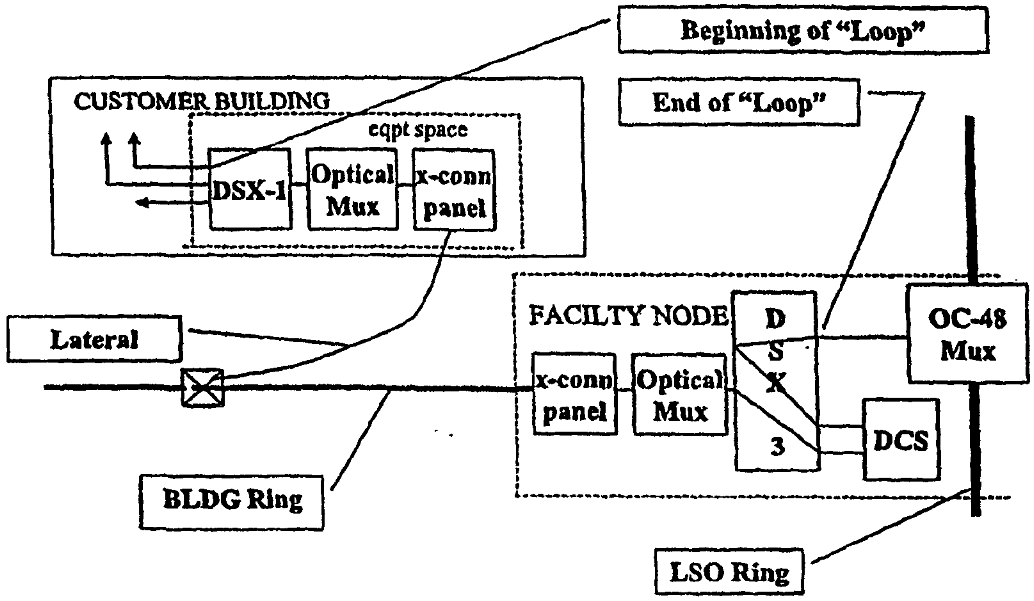


Figure 2

The functions of the individual components are relatively straightforward:

DSX-1 or DSX-3: Provides a cross-connection point between facilities operating at the DS1 level (DSX-1) or the DS3 level (DSX-3) without requiring that the facility be de-multiplexed to a lower bandwidth. The DSX frames allow relatively non-disruptive addition and removal of equipment, reasonable physical test access, and provide efficient means for cross-connecting circuits.

Optical Mux (and OC-48 Mux): Transmission equipment that aggregates (*i.e.*, multiplexes or "muxes") multiple lower bandwidth services onto a very high bandwidth facility. An Optical mux generally also supports signal conversions between optical and electrical based transmissions.

Digital Cross-Connection System (DCS): Provides for the grooming of facilities without the need to de-multiplex and re-multiplex the individual "channels" of the connecting facilities. For example, it permits the moving of DS1 #5 contained within DS3 #2 in facility segment A to DS1#17 within DS3 #3 on facility segment B. DCS allows improved utilization of very high capacity facilities.

X-conn Panel (or Fiber Distribution Panel): Provides a point of termination and cross-connection of a fiber facility to transmission equipment that manages the communications carrier within a fiber conductor.

Quantification of Cost of Self-provided Loops:

The cost of a self-provided loop can be conveniently analyzed based upon the following categories:

Lateral facility
Building Ring facility
LSO Ring transport
Building location costs
Node costs (interfacing between a Building Ring and an LSO Ring)

Each of these categories is reasonably subdivided into subcategories of investment costs, maintenance costs, and taxes.

Customer Lateral Facility:

As discussed above, the lateral facility is a short fiber that is dedicated to an individual building connected to a Building Ring. Because CLEC-provided loop facilities are typically placed in dense metropolitan areas, such facilities are virtually always placed in an underground structure. Consistent with the LSO Ring analysis, the building connected will be in one of the four most dense cells as defined in the HAI 5.2 model. Accordingly, the unit cost for the fiber lateral is the same as that underlying the analysis of the LSO Ring costs and is $40.99 per foot and $0.033 per strand foot. A twelve-strand fiber is assumed although this assumption does not materially impact the overall cost of the fiber lateral. Accordingly, the gross investment is $20,690[4] and converts to an investment cost of $342 per month.[5] As with the LSO transport model, a 0.61% per year per gross investment dollar maintenance assumption is applied, and 5% of investment and maintenance costs were added to cover non-income taxes. This results in a maintenance expense of about $11 and tax expense of $17 per month associated with the lateral. The total cost is $370 per month.[6]

---

[4] The actual calculation is as follows: 500 feet* ($40.99/foot+ 12 strands *($0.033/strand-foot)).

[5] The calculation is the same as employed in the LSO transport cost analysis in the Transport *ex parte* and employs the EXCEL PMT function. The actual calculation is PMT(cost of money, recovery period, gross investment*(1-salvage)). The cost of money employed in this analysis is based upon the pre-tax cost of money employed in the LSO transport cost analysis (*i e.*, 14.24%) increased by 20% to account for the greater risk associated with the loop plant investment (*i.e.*, the actual cost of money employed is 17.09% per year). The recovery period for the building-dedicated investment is 6 years. Net salvage is the same as that used for fiber facilities and is identical to that underlying the LSO transport analysis for underground fiber (*i.e.*, -14.58%).

[6] If the lateral life is assumed to be the same as that of an underground fiber, the overall cost declines to $91 per month, distributed $76 for investment recovery, $11 for maintenance and $4 taxes. However, such a long life is unreasonably conservative given the volatile nature of demand from a single customer location (customer contracts typically run only 2 to 3 years). Accordingly, even the 6-year figure assumes at least one contract renewal, and the figure presented is this footnote is offered strictly for sensitivity analysis purposes.

Building Ring:

As stated above, Building Rings are typically about 30 miles in total length and connect 10 to 20 buildings to the LSO transport node. As with the Customer Lateral, the Building Ring is assumed to be an underground fiber placed within one of the four highest density zones of the HAI model. Accordingly, the same unit cost per foot and per strand is employed as was used for determining the investment cost of the lateral. The cost modeling assumes 2 strands per building. Accordingly, the gross investment in the Building Ring is about $6.7 million.[7] Because this facility is shared among 20 buildings, the assigned investment cost per building is $334,952 of gross investment. Note that the maximum number of buildings typically placed on a ring was employed. As a result, this generates the lowest likely gross investment attribution.

A consistent approach was used to develop the monthly cost for the Building Ring component as was employed for the Customer Lateral. The only exception is that the life for the Building Ring was assumed to be that of underground fiber, *i.e.*, about 26 years, rather than the 6-year life for the lateral. While the life of an individual lateral may be relatively short, the assumption here is that as individual buildings drop off the ring (due to lack of demand) others are added to replace them, resulting in a stable number of on-net buildings. The monthly investment recovery cost is $5,533 and the associated monthly maintenance and tax-related costs are $170 and $285, respectively. The total Building Ring assigned cost is, therefore, $5,988 per month per building.

LSO Ring Transport:

The last component of physical connectivity associated with the CLEC loop is the LSO Ring transport. This is the same connectivity that would be employed by any other service configuration or loop connecting to the CLEC network through the node. As such, the cost previously developed for the Transport *ex parte* is employed here. Because the costs are basically fixed at the node, the issue is simply one of determining the total DS3 volume presented to the node and then determining the number of DS3s that an individual building contributes. For the purposes of this analysis, the fixed costs of the node are assumed to be the same as that developed in the Transport *ex parte* or $32,557 per month. Furthermore, in order to present the most conservative evaluation of the cost of a CLEC loop, the analysis assumes that the facility is used to 90% of capacity, or $740 per DS3 per month.

Customer Location Costs:

The customer location costs are primarily equipment and space related. The equipment costs are related to those elements shown at the customer location in Figure 2: the DSX-1, the Optical Mux and the Fiber Distribution Panel (FDP). The FDP investment is the

---

[7] The calculation is as follows: 30 miles * 5280 ft/mi*($40..99/ft + 20 buildings*(2 strands/building)*($0.033/strand-foot)

same as that used in the Transport *ex parte*, *i.e.*, $1000 per panel and 2 connections per multiplexer at $60 per connection ($1120 per connected panel). The Optical Mux cost is that for an OC-3 and is found in the HAI inputs (p. 96). The common cost is $20,000 plus $500 per 7 DS1s, up to a maximum of 84 DS1s. No cost was available in HAI for the DSX-1; however, costs were available on the ADC website for such equipment (www.adc.com). Specifically, a DSX-1 shelf with a capacity of 84 DS1s is priced at $2,085 (see item: Di M2GU1). Most customer building connections are at the OC-3 level. Accordingly, the investment at a customer premise is $23,205 plus $500/7 DS1s. This converts to a monthly cost of $407 plus $9 for every 7 DS1s active.[8] Thus, the total monthly investment cost for equipment at a customer location is in the range of $416 to $513 if from 1 to 84 DS1 (84 DS1s equal 3 fully utilized DS3s) are active. This investment cost results in a maintenance cost of $40 to $49 and taxes of $23 to $28 per month.

The final cost that must be considered is that for space rental. For the purposes of this analysis, space rental at each building adds about $678 per month.[9] Because no site preparation costs are explicitly included, there is no associated gross investment and, accordingly, no maintenance assumed. Taxes, however, account for $34/month.

The customer location costs are summarized below:

Item	Investment Cost	Maintenance	Other	Taxes	Total
Equipment	$416 to $513	$40 to $49	$0	$23 to $28	$479 to $590
Space	$0	$0	$678	$34	$712
Total at Premise	$416 to $513	$40 to $49	$678	$57 to $62	$1,191 to $1,302

Node Costs:

As shown in Figure 2, the equipment at the node necessary to interface with the LSO Ring transport included a FDP, an OC-3 multiplexer, a DSX-3 cross-connection device and a DCS. The FDP and OC-3 have the same cost, maintenance and tax implications as for the customer premises. The cost of the DCS is found in HAI 5.2 inputs (p. 99) and reflects a gross investment of $30,000 per DS3. HAI inputs do not explicitly list a DSX-3 cost. The same ADC website referenced for the DSX-1 also contains a cost for a DSX-3 (see DSX-4B-24-7A), which is $8,463 and can accommodate 24 DS3s. Because this function is shared at the node, rather than incurring the full cost of a shelf, the study

[8] The equipment lives, gross salvage and maintenance factors are those used for circuit equipment as described in the Transport *ex parte*, *i.e.*, 10.24 years, -1.69% and 2%, respectively

[9] AT&T's internal records relating to common space rentals indicate a national average monthly cost of $678.30.

assumes that sharing occurs and that the cost will be incurred on a DS3 basis (or $353 per DS3 port). Based on Figure 2, 5 ports are required per DS3 at the node. Accordingly, the gross investment formula for the node is $21,120+$500 per 7 DS1s+ $30,863 per 84 DS3s.[10] Thus, the node costs are largely a function of the number of DS3s delivered from the building. The table below summarizes the node related costs for various demand levels at the building:

Building Volume (DS1s)	investment cost	maintenance	taxes	total
0-7	$922	$87	$50	$1059
8-14	$931	$88	$51	$1070
15-21	$940	$89	$51	$1080
22-28	$949	$90	$52	$1091
29-35	$1516	$144	$83	$1743
36-42	$1525	$145	$83	$1753
43-49	$1534	$145	$84	$1763
50-56	$1543	$146	$84	$1773
57-63	$2110	$200	$115	$2425
64-70	$2119	$201	$116	$2436
71-77	$2128	$202	$116	$2446
78-84	$2137	$203	$117	$2457

[10] The investment cost equation, based on the same life and salvage assumptions applied to the customer node equipment is $355+$558/DS3+$9/7 active DS1. The fixed cost is slightly different compared to the customer premises, because rather than one FDP there are two and the cost of those two are shared among 20 buildings.

With all the components of the cost now established, it is possible to develop the total cost of connecting a building that provides varying levels of demand:

	Monthly Costs By Source						
DS1s active	cust location eqpt	lateral	bldg ring	node eqpt	LSO Backhaul	total	avg cost/DS1
1	$ 1,191	$ 370	$ 5,988	$ 1,059	$ 740	$ 9,348	$ 9,348
7	$ 1,191	$ 370	$ 5,988	$ 1,059	$ 740	$ 9,348	$ 1,335
14	$ 1,201	$ 370	$ 5,988	$ 1,070	$ 740	$ 9,369	$ 669
21	$ 1,211	$ 370	$ 5,988	$ 1,080	$ 740	$ 9,389	$ 447
28	$ 1,221	$ 370	$ 5,988	$ 1,091	$ 740	$ 9,410	$ 336
35	$ 1,231	$ 370	$ 5,988	$ 1,743	$ 1,480	$ 10,812	$ 309
42	$ 1,241	$ 370	$ 5,988	$ 1,753	$ 1,480	$ 10,832	$ 258
49	$ 1,251	$ 370	$ 5,988	$ 1,763	$ 1,480	$ 10,852	$ 221
56	$ 1,261	$ 370	$ 5,988	$ 1,773	$ 1,480	$ 10,872	$ 194
63	$ 1,271	$ 370	$ 5,988	$ 2,425	$ 2,220	$ 12,274	$ 195
70	$ 1,281	$ 370	$ 5,988	$ 2,436	$ 2,220	$ 12,295	$ 176
77	$ 1,291	$ 370	$ 5,988	$ 2,446	$ 2,220	$ 12,315	$ 160
84	$ 1,301	$ 370	$ 5,988	$ 2,457	$ 2,220	$ 12,336	$ 147

Having the total cost and unit cost for a constructed loop now permits an evaluation of when it is reasonable to substitute a build for an alternative facility. Because AT&T has generally been unable to obtain high capacity UNEs, particularly UNE DS1 loops multiplexed onto UNE DS3 facilities, the only possible comparison is to ILEC special access.

Special Access Alternative:

Other than access to a UNE loop, the alternative to constructing loops is a special access configuration from the customer premises to the CLEC network. Given the volumes, the configuration would most likely be a combination of DS1 channel terminations, DS3:1 multiplexing and DS3 interoffice transport. The approximate cost of such a configuration, under a long term pricing arrangement, is approximately the following:

DS1 Channel Term (with NRC amortized): $113 to $127 per DS1/month
DS3 fixed with mux (NRC amortized): $850 to $1,018 per DS3/month
DS3 interoffice mileage: $53 to $73 per mile per DS3/month

The figure represents the approximate rate, averaged across RBOC territories, for a three-year term agreement, and the lower figure represents the average rate for a 5-year term agreement. This is, therefore, a highly conservative estimate of the ability of a CLEC to self-deploy a loop because special access rates are well-above the RBOCs' economic costs. As AT&T has explained, a CLEC needs to achieve costs comparable to the RBOC's economic costs in order to deploy economically its own facilities.

These unit costs can be used to develop the average (per DS1) cost of a special access configuration. The only additional information required is the inter office mileage. For the analysis, the same mileage was used as is employed for the transport *ex parte* (8.94 miles). The following table compares the average cost per DS1 under an overbuild assumption (build) compared to the average cost of obtaining the equivalent capacity as a DS1 Channel Termination + DS3 interoffice transport using access obtained under a 5-year term agreement (SA-5) or a 3-year term agreement (SA-3). The table shows that the average cost of the self-provided loops are not less than special access pricing until a third DS3 is activated (each DS3 represents 28 DS1s). At 63 active DS1 loops, the build has a superior cost structure compared to the 3-years special access average unit cost ($195/DS1 compared to $206/DS1). Similarly, compared to the 5-year special access average unit cost, it is not until the 77th DS1 is activated that the build unit cost are an improvement over the special access rate ($160/DS1 compared to $165/DS1). All this leads to the conclusion that a CLEC requires at least 3 DS3s of customer demand at a building before a facility build can generally be proven in as financially prudent.

DS1s	build	SA-5	SA-3
7	$ 1,335	$ 302	$ 365
14	$ 669	$ 208	$ 246
21	$ 447	$ 176	$ 206
28	$ 336	$ 160	$ 187
35	$ 309	$ 189	$ 222
42	$ 258	$ 176	$ 206
49	$ 221	$ 167	$ 195
56	$ 194	$ 160	$ 187
63	$ 195	$ 176	$ 206
70	$ 176	$ 170	$ 198
77	$ 160	$ 165	$ 192
84	$ 147	$ 160	$ 187

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Implementation of requirements arising from Federal Communications Commission triennial UNE review: Local Circuit Switching for Mass Market Customers.	)))))	Docket No. 030852-TP Filed: February 25, 2004

AT&T'S RESPONSES TO STAFF'S SECOND SET OF INTERROGATORIES (15-44)

AT&T Communications of the Southern States, LLC ("AT&T") pursuant to Rule 28.106-206, Florida Administrative Code, Rule 1.340, Florida Rules of Civil Procedure and Order No. PSC-03-1055-PCO-TP, issued in this docket on September 22, 2003, hereby files its Responses to Florida Public Service Commission Staff's Second Interrogatories (15-44).

REQUEST: Staff's Second Set of Interrogatories

DATED: February 6, 2004

Interrogatory 25: Explain why a carrier would not splice all its deployed fiber to its ring all at the same time. Do you have any points in your network where you have deployed fiber, but have not connected all fiber strands to the ring? If so, where?

Response: In general, a carrier's goal is to deploy its network facilities in a manner that provides the highest level of flexibility while limiting unnecessary costs. Therefore, carriers avoid practices that add unnecessary cost to either the construction or maintenance of the network, or limits the potential use of deployed assets. The following example demonstrates why this is rational both from an engineering and economic perspective.

Assume a carrier deploys a 144-strand fiber cable (physical backbone) that it wishes to use to build individual system rings to serve four collocations and 10 buildings. Assume further that, as suggested by BellSouth's witness Padgett, the carrier pulls two 24-strand fiber cables into each of the collocations. Finally assume that the carrier elects to pull one 12-strand fiber cable into each of the buildings.

AVAILABLE	CONNECT	AVAILABLE
144 strands strands		144
	← fully connect 48 strands to collocation 1 *splice 8 strands for service and protection* →	
96 strands strands		136
	← fully connect 12 strands to building 1 *splice 4 strands for service and protection* →	
84 strands strands		132
	← fully connect 48 strands to collocation 2 *splice 8 strands for service and protection* →	
36 strands strands		124
	← fully connect 12 strands to building 2 *splice 4 strands for service and protection* →	
24 strands strands		120
	← fully connect 48 strands to collocation 3 **Impossible as strands in the cable have been exhausted.** *splice 8 strands for service and protection* →	
Exhausted		112 strands

By splicing only the necessary strands to the physical cable all four collocations and all ten buildings can be served using only 72 strands thus allowing for future growth either to existing building or to new buildings that can be served from the fiber ring.[1]

In response to the second part of this Interrogatory, AT&T's

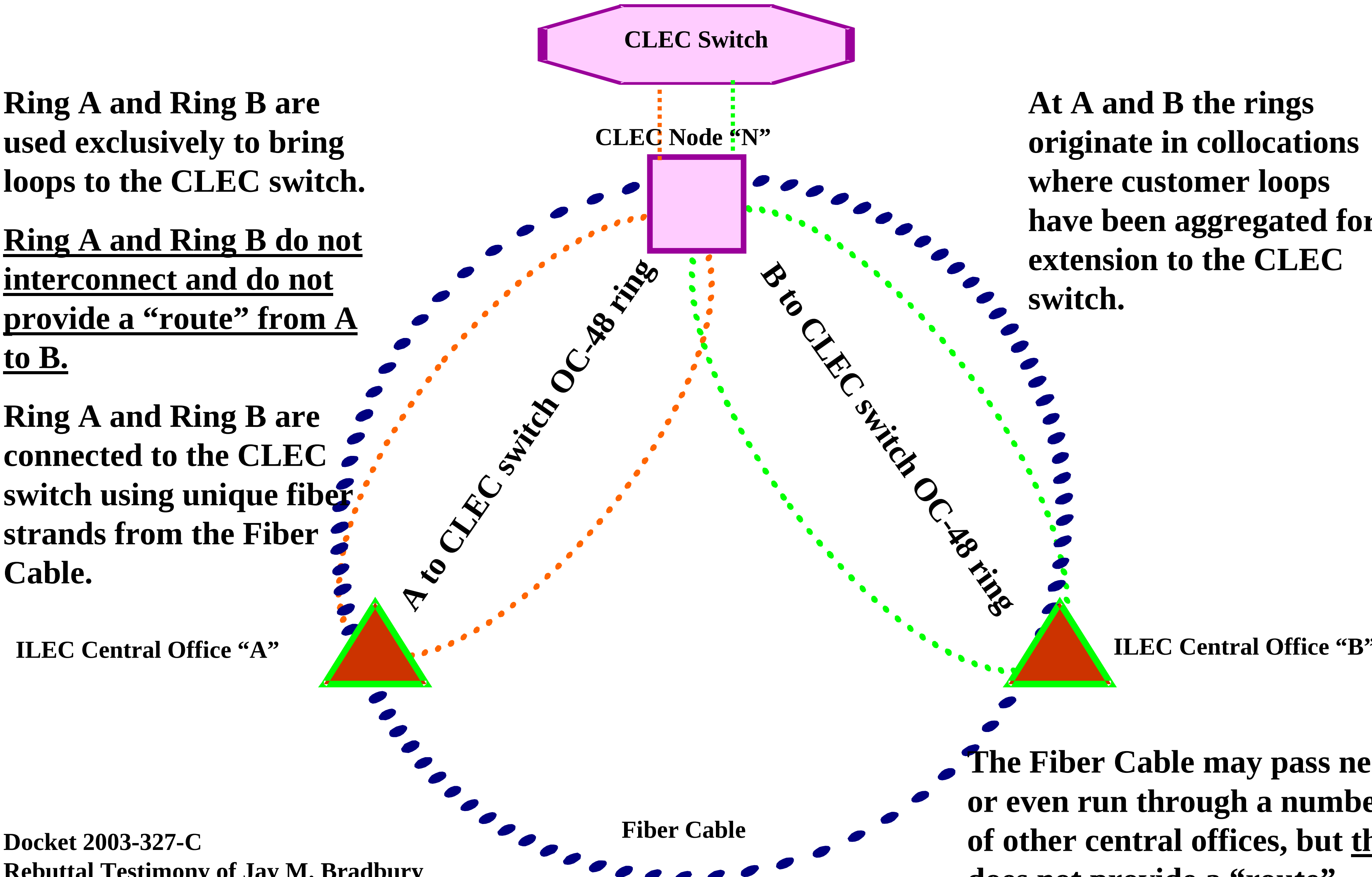
[1] This practice is consistent with the use of the ILEC's copper network. For example, while there may be four copper pair terminated at a customer premise, unless the ILEC is providing service to all four loops, the ILEC does not establish a contiguous path back to its switch.

previously submitted lists of its on-net collocations and buildings to which we self-provide backhaul and high capacity loops. At every one of these locations AT&T will have deployed a fiber entrance facility or fiber lateral that contains fiber strands not connected (spliced) to the fiber cable (physical ring).

Ring A and Ring B are used exclusively to bring loops to the CLEC switch.

Ring A and Ring B do not interconnect and do not provide a "route" from A to B.

Ring A and Ring B are connected to the CLEC switch using unique fiber strands from the Fiber Cable.

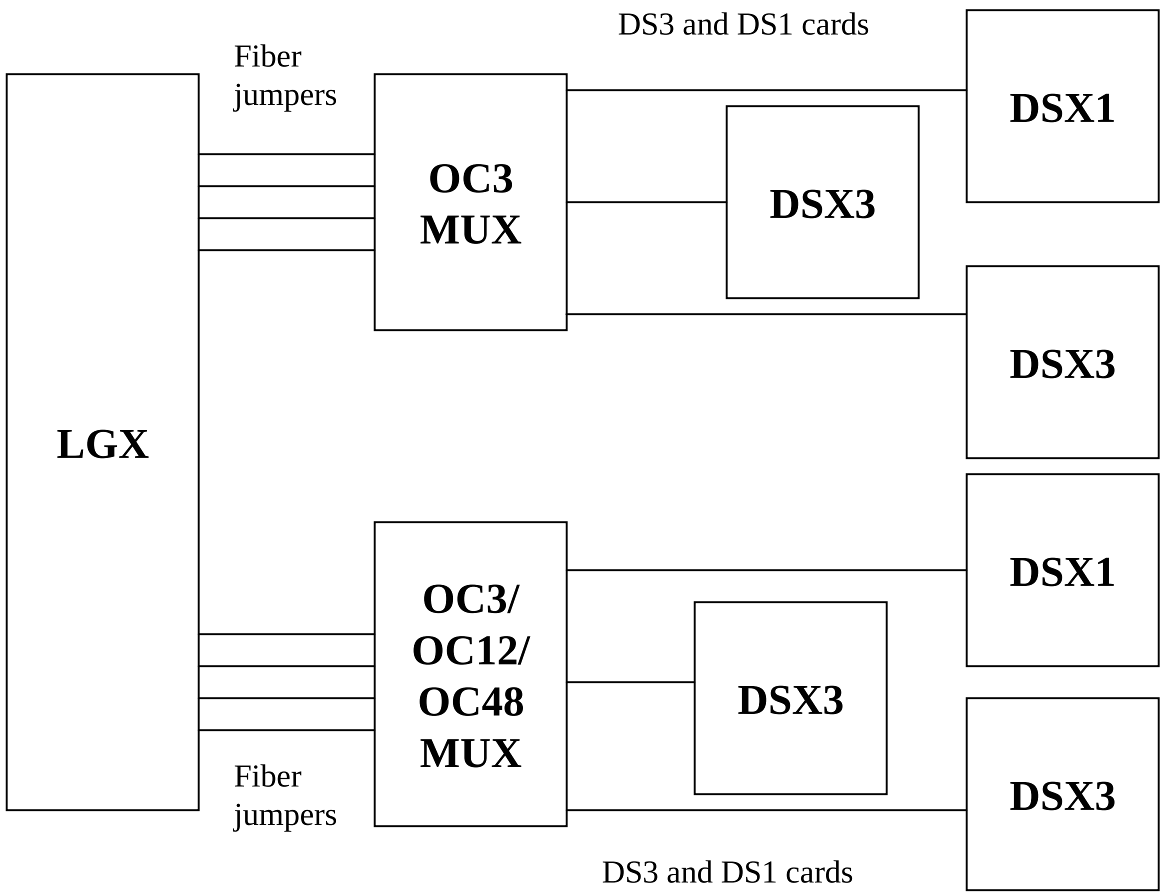


At A and B the rings originate in collocations where customer loops have been aggregated for extension to the CLEC switch.

The Fiber Cable may pass near or even run through a number of other central offices, but this does not provide a "route" between any of them.

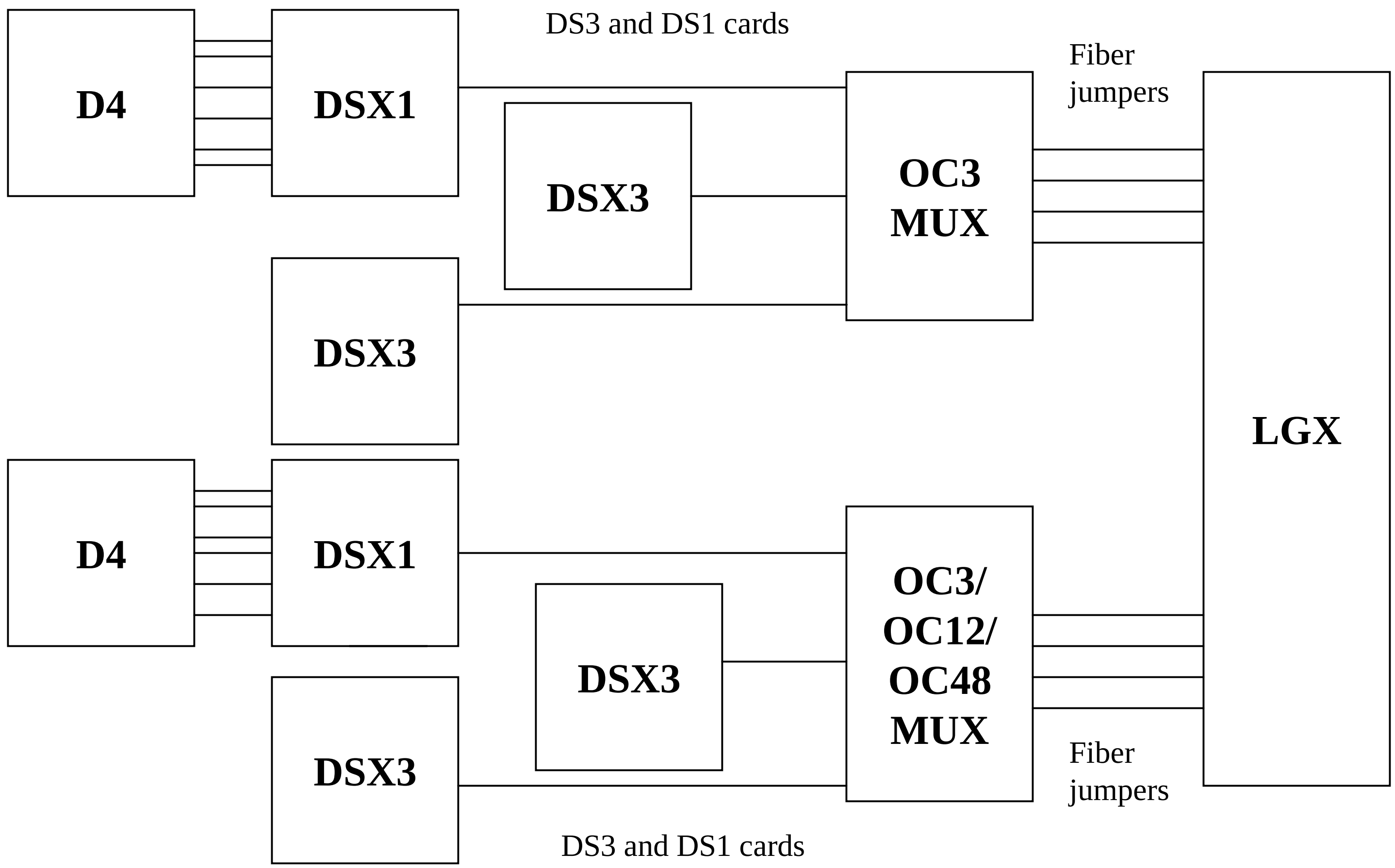
Docket 2003-327-C
Rebuttal Testimony of Jay M. Bradbury
March 31, 2004
Exhibit: JMB-R5

Key Network Architecture Equipment Needed for High Capacity Loops Or Dedicated Transport for Full Channelization Collocations and CLEC Node

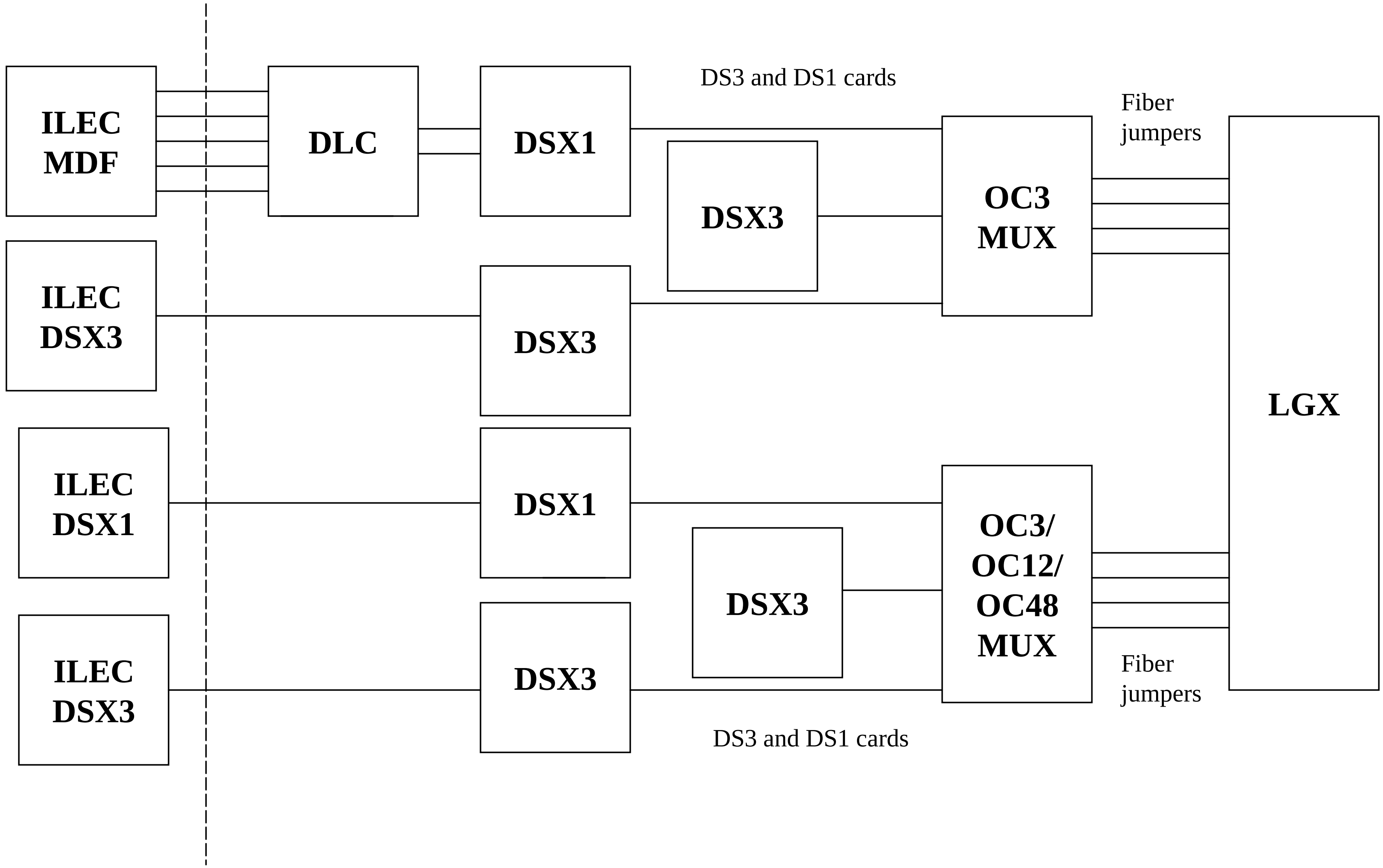


Docket 2003-327-C
Rebuttal Testimony of Jay M. Bradbury
March 31, 2004
Exhibit: JMB-R6

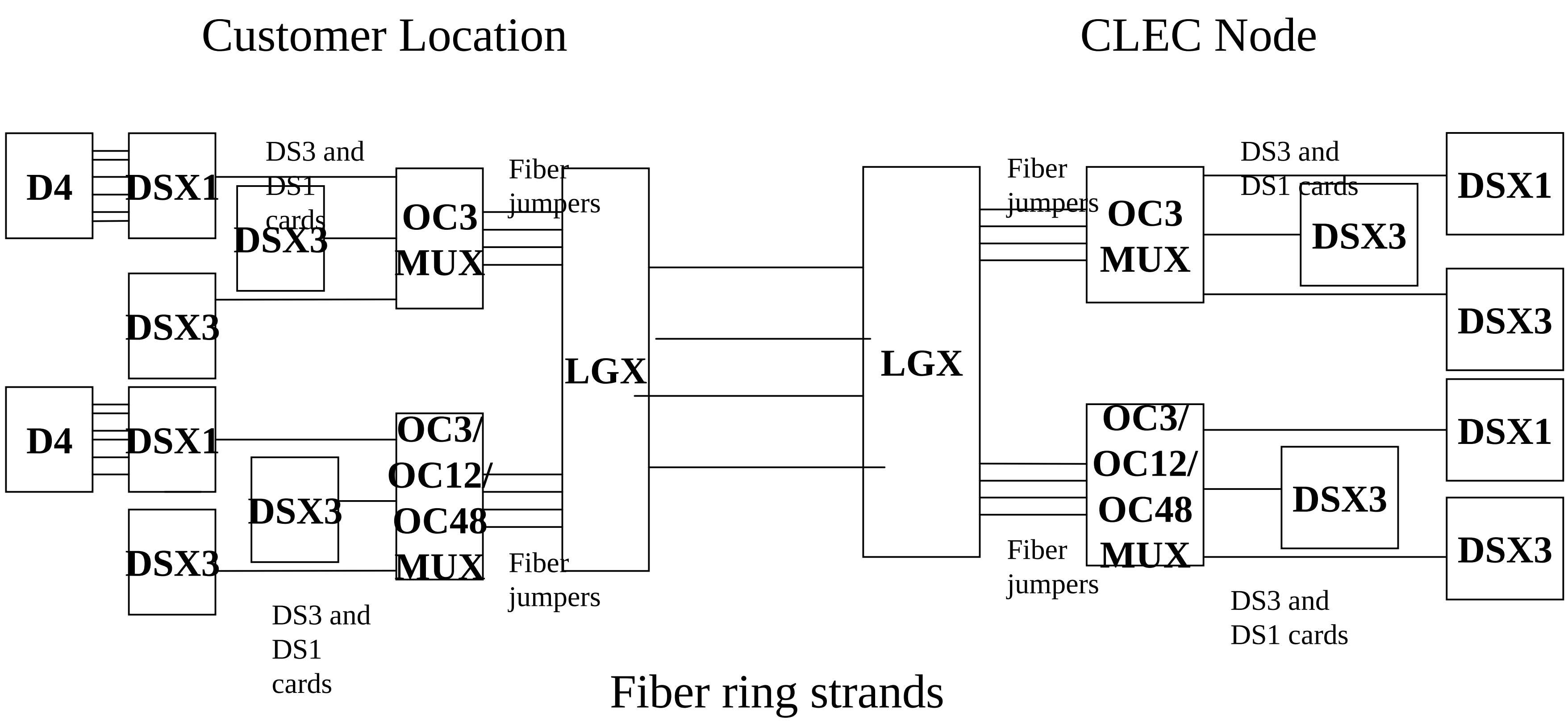
Key Network Architecture Equipment Needed for High Capacity Loops Or Dedicated Transport for Full Channelization Customer Locations



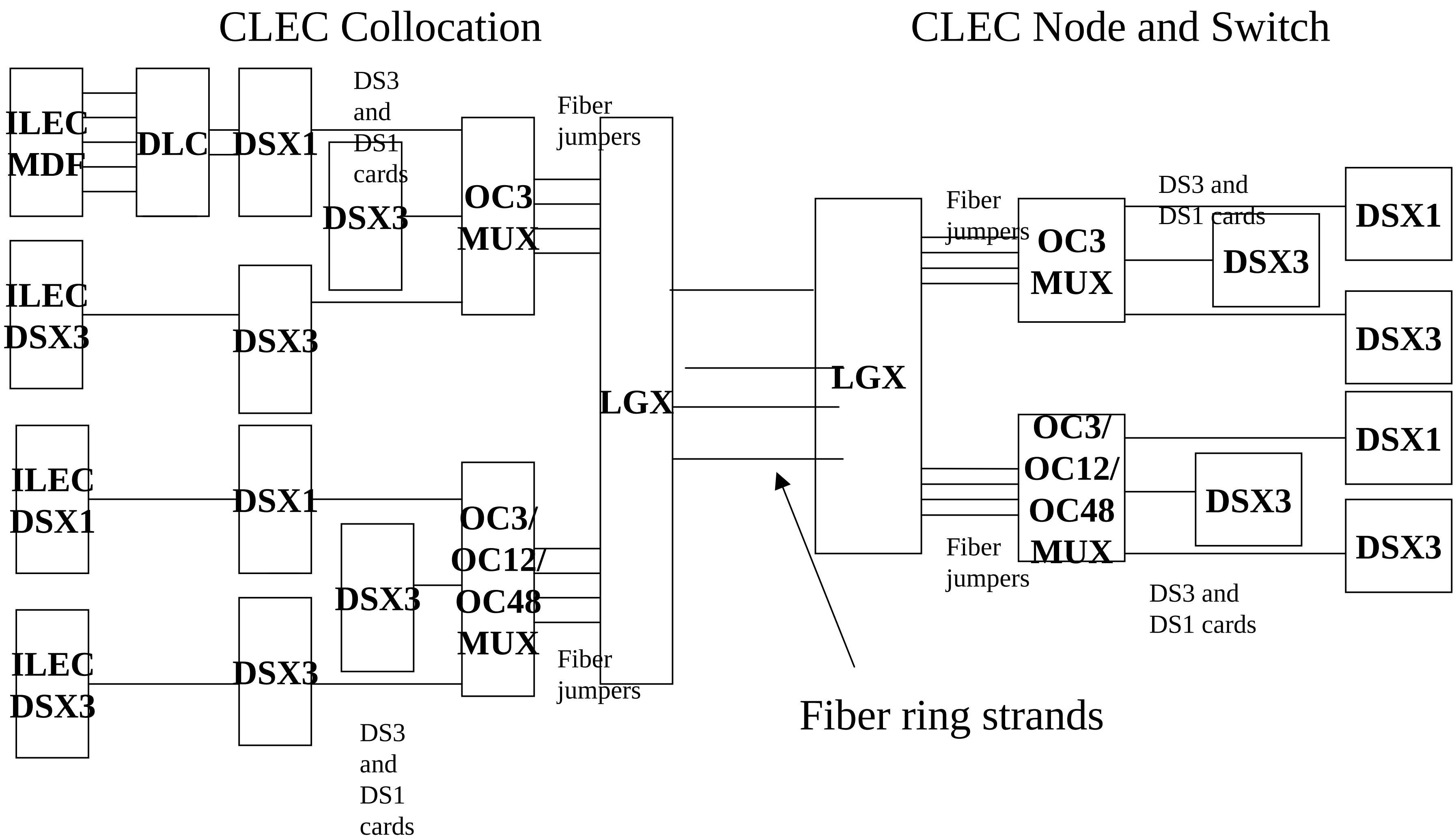
Key Network Architecture Equipment Needed for High Capacity Loops Or Dedicated Transport for Full Channelization CLEC Collocation with DLCs



Without specific dedicated DS3 and DS1 equipment components at both the customer location and CLEC node neither DS3 or DS1 signals can be exchanged.



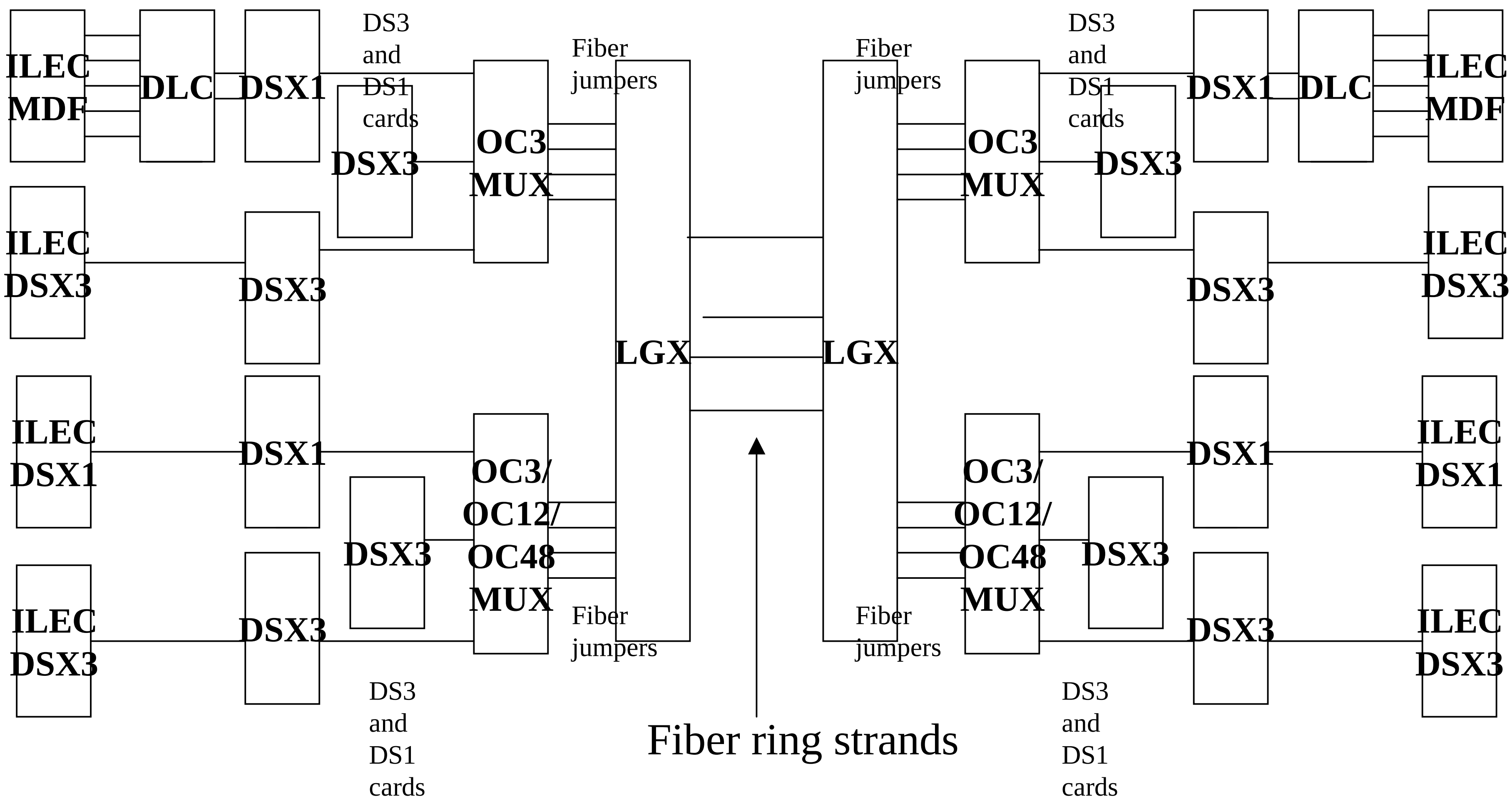
AT&T aggregates loops at its collocations for delivery to its switch. Without specific dedicated DS3 and DS1 equipment components at both ends neither DS3 or DS1 signals can be exchanged.

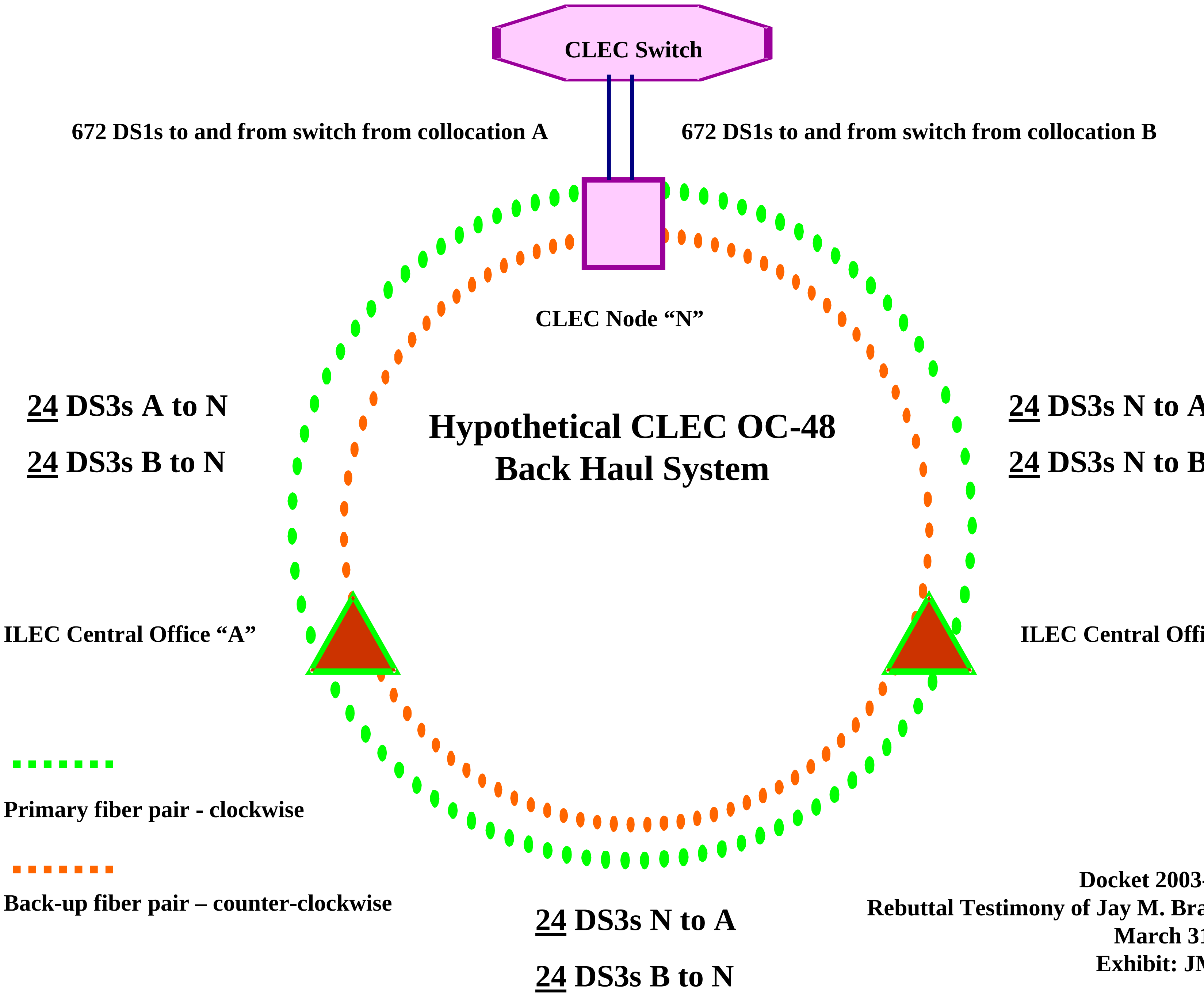


AT&T does not self-provide transport between its collocations. However for any CLEC that might, without specific dedicated DS3 and DS1 equipment components at both ends neither DS3 or DS1 signals can be exchanged.

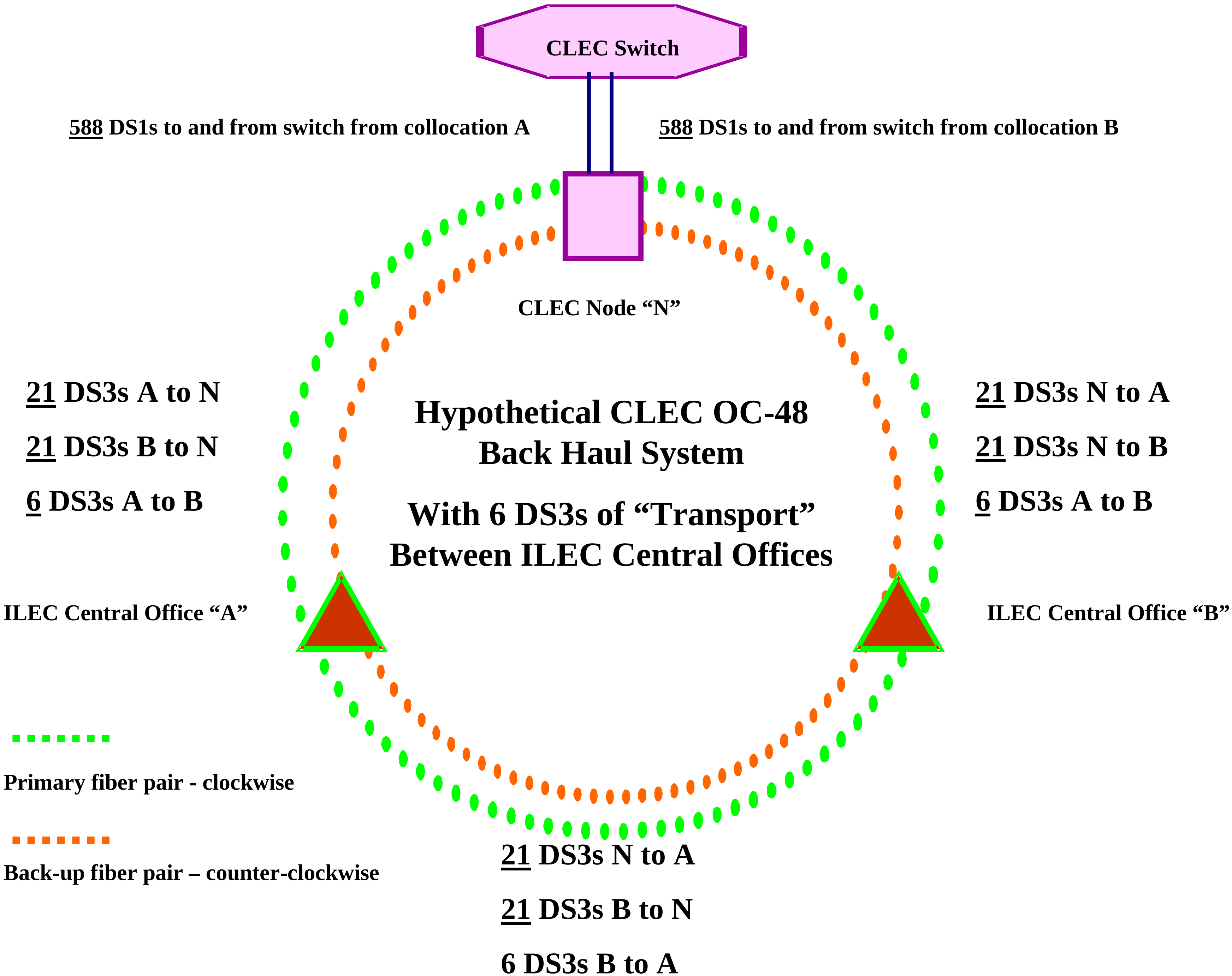
CLEC Collocation A

CLEC Collocation Z





Docket 2003-327-C
Rebuttal Testimony of Jay M. Bradbury
March 31, 2004
Exhibit: JMB-R7


CLEC Switch
588 DS1s to and from switch from collocation A
588 DS1s to and from switch from collocation B
CLEC Node “N”
Hypothetical CLEC OC-48
Back Haul System
With 6 DS3s of “Transport”
Between ILEC Central Offices
21 DS3s A to N
21 DS3s B to N
6 DS3s A to B
21 DS3s N to A
21 DS3s N to B
6 DS3s A to B
ILEC Central Office “A”
ILEC Central Office “B”
Primary fiber pair - clockwise
Back-up fiber pair – counter-clockwise
21 DS3s N to A
21 DS3s B to N
6 DS3s B to A

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion Into Competition for Local Exchange Service.	R.95-04-043
Order Instituting Investigation on the Commission's Own Motion Into Competition for Local Exchange Service.	I.95-04-044

Direct Testimony of Scott J. Alexander

On Behalf of SBC California

Regarding Dedicated Transport

ON BEHALF OF

SBC CALIFORNIA

REDACTED ATTACHMENTS

November 20, 2003

Docket 2003-327-C
Rebuttal Testimony of
Jay M. Bradbury
March 31, 2004
Exhibit: JMB-R8

responses to the discovery requests issued by the Commission and the parties. SBC received partial discovery responses to the Commission's data requests on the date of this filing and has yet to receive complete discovery responses from any parties in response to its own requests. SBC is in the process of analyzing the data it has received in light of the considerations set forth by the FCC for potential deployment. Further, the upcoming workshop should be an additional source of competitive carrier information.

Q7. How is your testimony organized?

A7. First, in Section I.B, I provide background information about dedicated transport and generally describe the development and extent of competitive transport facilities. Next, I discuss in Section I.C the pertinent provisions of the FCC's *Triennial Review Order*. In Section II, I apply the FCC's "triggers" for self-provisioned and wholesale transport (which are based on existing competitive facilities). Overall, I describe the evidence of competitive facilities that I considered, and demonstrate that such evidence supports (at a minimum) a *prima facie* showing of "non-impairment" for the dedicated transport routes I identify.

B. Background

Q8. What is dedicated transport?

A8. Dedicated transport facilities connect two points within a communications network, so that information can be transmitted between those two points. "Dedicated" transport means all or part of the facility is dedicated to a particular carrier or use and that there is no switching interposed along the transport route.

Q10. How does SBC use dedicated transport within its own network?

A10. SBC's network architecture has traditionally used "central offices" (also known as "end offices" or "wire centers") which link end users in a given area to the network, and "tandem" offices, which connect central offices. Dedicated transport facilities run between SBC's central offices, between central offices and tandem offices, and between tandem offices. Such transport facilities are generally referred to as "interoffice transmission facilities" because they connect two of SBC's offices. Attachment 1 illustrates dedicated transport in SBC's network. Dedicated transport, as discussed in my testimony, consists of dedicated interoffice transmission facilities that are dedicated to a particular customer or carrier. "Shared" transport, which consists of transmission facilities shared by more than one carrier, is not at issue in this case.

Q11. What is "dark" fiber?

A11. Dark fiber is deployed fiber optic cable (or fiber strands within an existing fiber optic cable) between two points. It is called "dark" fiber because the cable (or some of the fiber strands in the cable) have not been "lit" by optronic equipment (which transmits information in the form of lightwave pulses, as I described above) on either end of the fiber. Dark fiber *transport* is unlit fiber cable (or strands) between two SBC central offices. A dark fiber *loop* (which I discuss in separate testimony on high-capacity loops) is unlit fiber between a customer location and an SBC central office.

Q12. Have carriers other than SBC deployed transport facilities?

A12. Yes. Nationwide, competing carriers of all sizes have deployed over 184,000 miles of fiber optic cable. The Association for Local Telecommunications Services ("ALTS"), an